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PHILOLOGICAL GLEANINGS.*

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NO. VII.

Some confusion may perhaps have arisen from the common use of the word *substantive*, as applied to the names of mental and coporeal conceptions. By *substance* we are apt to understand only material or bodily substance, that which we can touch and handle, and weigh and measure; but this is merely a verbal difficulty. *Substantive*, in the grammatical sense, means that which is considered as having an independent and separate existence, and of which something may be affirmed or denied, *substantively*, without reference to any other thing as its basis and necessary support. This notion, then, of independent existence is the real characteristic of all those words which are called nouns substantive: it applies equally to ideas and bodies, to thoughts and to things.

* Condensed from the Encyclo. Metropol.

What we here call *ideas* are the mental conceptions, to which that name was originally given—conceptions, which, in the language of PLATO, though they run through the particular objects which participate their nature, are separate from each individual—μιαν ἰδεαν δια πολλων ὁρω ἱκανως κειμενην χωρις Thus, as he elsewhere says, the idea or mental conception of a circle is different from every visible impression of a circle; for the former is perfectly round, whereas each of the latter has some part or other approaching to a straight line. M. Condillac (who calls ideas, abstract ideas) says that "*abstract ideas* are only denominations." On this notion Mr. Tooke enlarges at great length. In his remarks he is pleased to inform his readers that "*heaven* and *hell*" are "merely participles poetically embodied and substantiated." What practical inference is to be drawn from this statement we know not; but we have carefully endeavored to understand Mr. Tooke's doctrine, as far as it relates to grammatical explanation of the (so called) abstract nouns. It appears to us, we own, rather obscure. but perhaps it may be more satisfactory to some of our readers; and therefore we shall state it as distinctly as we are able, in the following propositions:

1. The verb is the noun, and something more. (vol. ii. p. 514.)

2. The adjective is the noun, directed to be joined to another noun, (vol. ii. p. 431.)

3. The participle is the verb adjectived, that is, "it has all that the noun adjective has, and for the same reason, viz. for the purpose of adjection." (vol. ii. p. 468.)

4. The abstract nouns "are generally participles or adjectives used *without* any substantive to which they can be joined." (vol. ii. p. 17.)

The result of this seems to be, that when an abstract noun is a participle (as Mr. Tooke says *heaven* is), it is *a noun, and something more, converted into a noun directed to be joined to another noun, but used without any noun to which it can be joined.* How far this mode of reasoning goes to show that there are not in the mind such ideas, as *whiteness, strength, virtue,* and the like; or that these words do not serve to communicate any thing but conceptions of solid, tangible, corporeal substance, in an abbreviated form, must be left to the determination of the judicious reader; for our own part, we cannot see that it tends much to enlighten what may be thought obscure, in the works of the ancient grammarians; still less does it appear to us to cast a doubt on those principles which have been stated with great clearness and precision by Mr. Harris and some other modern writers.

We come next to what we call a difference of *gradation;* and by this we mean that order or arrangement of conceptions which classes them as *genera, species,* and *individuals.* Although the ancient writers have in general noticed only these three gradations,

yet it is easy to see that they may be multiplied indefinitely. Thus we may say, *animal* is a genus, *man* a species, *Alexander* an individual; but we may also divide the species man into *white* or *black*, *king* or *subject*, or *Greek* and *barbarian;* or we may make *being* the genus, *created being* the first species, *organized being* the second, *animal* the third, and so downwards, in regular subordination, until we come to the individual. Hence it appears that the only important distinction of substantives, in this respect, is into words expressing *individual* things, and words expressing classes more or less *general;* a distinction answering to the old grammatical terms *nomen* and *vocabulum*, or nomen *proprium* and nomen *appellativum;* or, in the language of our modern Grammarians, nouns *proper* and *common*.

It has been justly observed by Mr. Locke, that "it is impossible that every particular thing should have a distinct peculiar name; for the signification and use of words depending on that connection which the mind makes between its *internal operations* and the sounds which it uses as signs of them, it is necessary, in the application of names to things, that the mind should have distinct *conceptions* of the things, and retain also the particular name that belongs to every one, with its peculiar appropriation to that conception. But it is beyond the power of human capacity to frame and retain distinct *conceptions* of all the particular things we meet with; every bird and beast men saw, every tree and plant that affected the senses could not find a place in the most capacious understanding. If it be looked upon as an instance of a prodigious memory, that some generals have been able to call every soldier in the army by his proper name, we may easily find a reason why men have never attempted to give names to each sheep in their flock, or crow that flies over their heads, much less to call every leaf of plants or grain of sand that came in their way by a particular name." So far Mr. Locke, in which quotation we have only taken the liberty to substitute for the word *ideas*, in one place *internal operations*, and in two others *conceptions*. The reasoning, however, is not affected by the change, and it is such reasoning as must carry conviction to every mind. We also agree fully with this writer, that to name every particular thing, if possible, would be useless for the purpose of communicating thought, unless every man could first teach the whole of his own endless vocabulary to every other man with whom he conversed, or for whose information he wrote. And again, supposing even this possible, it would not conduce at all to science; for as Aristotle has said, "of particular things there is neither definition nor demonstration, and consequently no science, since all definition is in its nature universal."

Proper names are, therefore, comparatively few in number. They serve to denote a very few of the immense multitude of

particular objects which fall under our observation. Some of these, indeed, obtain a distinguished celebrity within a small circle; they are

> Talked of far, and near at home.

But the poet, the orator, or the historian, may raise them to a prouder eminence. He may render them the symbols or representatives of the class to which they belong. It is thus that *Alexander* becomes the synonyme of conqueror, and *Cicero* of an orator.

Even proper names, however, have in general been given to individuals from some quality or action not strictly peculiar to them. Hence the old English rhyme alluded to by VERSTEGAN, in relation to the family name of *Smith:*

> Whence cometh Smith albe he knight or squire,
> But from the Smith, that *smiteth* at the fire?

And thus we see how words of individual import, as well as conceptions of individual existence, arise from *ideas*, that is from thoughts, not particular, but universal. Nevertheless, it must be admitted, that the universal idea is soon lost in the particular application. Few people reflect that *George* originally signified *husbandman*, or that *Charles* and *Andrew* both signified *manly*, or *strong*, the former from its Gothic, the latter from its Grecian etymology. These names have now come to indicate individuals; and as even thus a single word is not found to answer the purpose sufficiently, we have the *baptismal* name and *surname;* as the Romans had the *prænomen*, the *cognomen*, and the *agnomen.*

Besides these proper names, all other substantives are *common*, or what Mr. LOCKE calls *general words*, which he truly says are "the inventions and creatures of the understanding." But the process of the understanding, in inventing and forming these words, he has not accurately traced; which, indeed, is not much to be wondered at; since he proceeds solely on an incorrect, or at least an imperfect maxim of the schoolmen, viz. *Nihil est intellectu, quod non prius fuit in sensu;* the only rational meaning of which is, that we receive, by means of our senses, the materials upon which intellect operates, or by which it is first excited to the perception of truth; so that the maxim, as has been well observed, ought in its perfect state to stand thus: "*Nihil est in intellectu, quod non prius fuit in sensu, præter ipsum intellectum.*" Now the mode in which the understanding proceeds is easily to be discovered from the general *aim* and objects of its process, which is to acquire some knowledge that may be useful, not only on one occasion, but on all similar occasions; to know some truth which may not only apply to *Peter* or *John*, but to all persons who resemble *Peter* or *John;* but this cannot be done, unless we have

a common word which implies that resemblance; and the persons in question cannot resemble each other but by relation to some common conception, which does not necessarily belong to any one of them more than to any other. That common conception, therefore, supplies the class-word, which renders the truth common. Thus *Peter*, *James* and *Andrew* may be *slaves;* the conception of *slavery*, therefore, is common to them all, and whatever is universally true of it, is true not only with relation to Peter, James, and Andrew, but to all others who are, or have been, or may be, in the state of life expressed by the word *slave.* Again, a slave and a citizen agree in this, that they are *subjects;* a subject and a sovereign in this, that they are *men;* a man and a beast in this, that they are *animals.* Now all these conceptions, to wit, slavery, subjection, human nature, and animal nature, are so many mental conceptions, or *ideas*, and they are regularly subordinated, one to another in a certain gradation, according as they are viewed by the mind; which view is determined, not by any accidental impression received from the senses, but, on the contrary, by the general truth, of which the understanding is in search. Thus, if we are in search of some truth relative to the state of slavery; we may consider the conception of *slave* as a genus, and divide it into the species of domestic, political, absolute, limited, and the like; or if we wish to reason upon animal nature, we may regard *animal* as the genus, and man, beast, bird, fish, etc., as species. In like manner, we may consider an *angle* a genus, and the acute, the right, and the obtuse angle as species.

The nature and effect of these genera and species may be thus explained: all truth, which is not intuitive, must be discovered by reasoning; but reasoning is reducible, in all cases, to the syllogistic form. Now a syllogism is a combination of propositions: and a proposition asserts either the agreement of a substance with its attribute, or of a genus with its species. The subject of a proposition is one conception, and the predicate is another. Each of these may be represented by a noun substantive; but one of them, if not both, is necessarily *common;* for the assertion that one proper noun is another, for example, that "John is William," is no assertion at all, for any purpose of reasoning.

Omitting, for the present, the consideration of those propositions, which assert the agreement of the substance with its attribute, let us consider those which assert the agreement of a genus with its species, as "that man is an animal," "that an isosceles is a triangle," or the like. If the conception *animal* includes the conception *man*, the proposition "*man* is an animal" is true; and in like manner, if the conception *triangle* includes the conception *isosceles*, then the proposition "an isosceles is a triangle" is true. But nobody who understands these conceptions can doubt the truth of the propositions. Why? Because such is the nature

of the *idea* "animal," that it includes the idea *man;* that is to say, it not only applies to all the men that we ever have known, but to all that we ever can know, and to many other conceptions besides; and in the same manner we may reason concerning the ideas of *triangles* and *isosceles* respectively.

The genus, therefore, is an *idea* including the species; not as a day includes an hour, or as a mile includes an inch, that is to say, as a given measurable part or portion, but simply as being of more comprehensive application, and therefore embracing all the particulars which the other embraces, and many more. Thus, let us give what definition we please of the idea *man*, we shall find that the idea *animal* includes it, and something more. If *man*, therefore, be considered as a species, *animal* will be a genus, or conception of a higher order; and it is simply on the principle of one conception including or not including another, that the whole doctrine of syllogistic reasoning depends.

From what has here been said, it is manifest, that the distinction of genus, species, and individual, is properly logical. The two first classes, however, are necessarily expressed by the nouns which we have called common: whilst the individual may either be expressed by a proper name or by a common noun individualised (as will be hereafter shown) by the help of an article or pronoun. With respect to the individual also, we have to observe that it is not necessarily indivisible; but on the contrary there is a class of nouns called *nouns of multitude*, each of which, though it represents a number of beings definite or indefinite, still represents them as one thing; of this sort are the words an *army*, a *regiment*, a *troop*, a *nation*, a *crowd*, a *flock*. Those writers who have not well comprehended the distinction of genus and species, have sometimes explained the words representing them as mere nouns of multitude, that is to say, "as representatives of many particular things," instead of being representatives of an idea common to those particular things.

Thus have we shown that the noun, according to its essential distinctions, signifies a conception corporeal or mental, and that it signifies it by the name proper or common. But to these essential distinctions are to be added the accidental ones, of which we have next to speak, viz. *number*, *gender*, and *relation*, or *case*.

Whatever is accidental may, or may not, be viewed in connection with that which is essential. Thus the conceptions or ideas of *number* may or not be viewed in connection with the conceptions as that of *man*, or *whiteness*, or *sun*, or *star;* and if viewed in connection with any one of these, the complex conception may be expressed by a single word, or by two words, as happens in regard to other combinations of ideas; thus as *saint* is a single word including the conceptions expressed by the two words *holy*

and *man*, so the word *horses* includes the conceptions expressed by the words *horse* and *number*.

In order to understand when the conceptions of number can, and when they cannot, be added to other conceptions, we must consider what the former are. For this purpose we cannot perhaps, refer our readers to a more satisfactory or better authority than Plato's *Epinomis*, sometimes called the Thirteenth Book on Laws; but the whole passage is too long to be extracted, and we should do it injustice were we to exhibit it in an imperfect state. Suffice it to say, that PLATO agrees with Mr. LOCKE in asserting, that "*number* is the simplest and most universal idea," for *unity* itself is in this sense the origin of all our ideas of number. But the latter philosopher is by no means correct in saying that "its modes are made by addition; for we might as well say that they are made by division, or by substraction, or by multiplication; since addition is, equally with each of the others, one of the powers of numbers, and presupposes the idea which Mr. Locke imagines it to produce. He says "by repeating this idea (viz. of unity) in our minds, and *adding the repetition together*, we come by the complex ideas of the modes of it. Thus by adding one to one we have the complex idea of a couple." Very true, by adding; but not by simply repeating, which is a totally different operation. John is one, and Peter is one, and Henry is one; but one is not two, or three. What makes me then acquire the ideas of *two* or *three?* Certainly not the bare act of repeating one, one, one; for children, and idiots, who cannot reckon three, can do this: and M. de la Condamine mentions whole tribes of savages, who cannot reckon beyond three, though certainly they could repeat one, two, three, all the day long. There must, then, be something in the nature of the ideas of number without which it would be impossible for us to "add one to one," and of course to obtain the complex idea of number. Now, this consists in the still more general nature of all ideas, and in that power, which they have, to grow and multiply by contemplation. Thus, if we enumerate John, and Richard, and Henry, and William, and James, and Edward, etc., the very slightest attention will show us that there is not merely unity, but *multitude*, or the idea of number in its most indistinct form; but in order to distinguish this multitude into given numbers, as twos, threes, or fours, it will be necessary to refer each conception to some other. Thus these two, John and Richard, are tall; these three, Henry, William, and James, are short; or these three, John, and Richard, and Henry, stand in the first line; these two, William and James, stand in the second; or the first, John, is counted on the thumb, the second, Richard, on the fore finger; the third, Henry, on the middle finger; the fourth, William, on the finger next beyond the middle; and the fifth, James, on the little finger. This last mode of sorting

and classing conceptions has been generally adopted by mankind, whence the Greek word πεμπαζειν "to reckon by fives," was used generally for "to number." Some barbarous tribes never went beyond the use of one hand for this purpose; whereas the more cultivated nations employed both hands; and this latter mode is the origin of our decimal system of arithmetic, and explains why the numerial figures are still called *digits.*

We have observed, that the first conception of number is simply, that it is something beyond, and different from unity; that it is unity repeated, or multitude. Thus far most nations have gone, in expressing, by one word, the combination of number with any given conception; and this variation in the noun is called, by grammarians, the *plural number.* The plural number usually differs from the singular in form, either by the use of a word altogether different, as "*pig* and *swine;*" or by a change of articulation, as, "*man* and *men;*" or by a syllable added, as, "*horse* and *horses;*" "*ox* and *oxen;*" but as the variety of these forms proves that no one of them is essentially necessary; so both experience and reflection will show, that no change whatever is necessary in the noun itself, provided that some other word serves to show us that the noun is used with reference to plurality; thus we say "fifty *sheep,*" and "fifty *head* of cattle;" and so in Latin the genitive and dative cases singular, and nominative and vocative plural of the first declension, are identical.

The form in which the noun expresses unity of conception, is called the singular number; but it would not be possible for nouns to have a separate inflection for every separate conception of number, that could be combined with them by the mind. Therefore, they cannot have separate forms for the *dual, ternal, quaternal* numbers, and so on, *ad infinitum;* but for some of these numbers they may. Experience, indeed, has not shown us that they have ever gone beyond the *dual* number in this respect; and that has been done by very few nations. Some grammarians have warmly agitated the question whether the Latin language has, or has not, a dual number. Donatus says "there are two numbers, the singular, as *hic sapiens,* and the plural, as *hi sapientes.* There is also a *dual* number which cannot be expressed singularly, as *hi ambo,* both these; *hi duo,* these two." Donatus is certainly right in calling these expressions *duals,* since they relate to the conception of two; but for the same reason he may call the expressions *hi tres, illi tres,* and the like, *ternals;* and so on, of any other numbers. This remark, however, leads to the clear and easy solution of the dispute among the grammarians; since it shows that each party was right in the different view it took of the subject. It is certain, on the one hand, that the Latins could and did express the conception which was expressed by the Greek dual; but it is equally certain that they did not express it in the same manner.

Among the Ionian Greeks the idea of *two* was expressed by the word which from long use and habit had come to be employed as the terminating syllable of any noun with which that idea was connected. Amongst the Eolian Greeks, and their Latin successors, the same idea of two was expressed by words which never happened so to coalesce. SCALIGER on this, and some other occasions, reasons as if the formation of different dialects were a matter of premeditation and study; and therefore he calls the Ionians triflers, and describes the Eolians as more grave and severe; whereas it is certain that all languages, in their early state, grew up without much meditation and reflection, and that the cultivation and polishing of its language is one of the last results of a nation's civilization. Nor can this be otherwise; for ideas, which are the laws of mind, develop themselves in practice, and guide our mental operations, just as animal laws direct our bodily actions, long before we suspect either of them to exist. We walk, and dance, and ride, according to the laws of gravitation; we swim by the principles of hydrostatics; we form and express thoughts by the laws of *conception*, *assertion*, and *deduction;* but it is not until long after we have submitted to those laws, that we begin to take cognizance of them as distinct objects of thought; for the last operation of the human intellect is that by which it separates itself from outward things, and discovers within its own nature a world of beauty and order, which even more than this wondrous body of man with all its curious apparatus, chemical and mechanical, more than this terraqueal globe with its animal and vegetable and mineral riches, more than the sun "looking from his sole dominion," or even than the countless numbers of the heavenly host peopling interminable space, discovers to our finite comprehension the traces of that DEITY, who cannot be more fully revealed but by his own divine word.

Thus it is, that in intellectual, as in moral speculation, our simplest conceptions are most closely connected with that absolute truth, of which Mr. Tooke altogether denies the existence. "*Truth*," says he, "supposes mankind; for whom, and by whom alone, the *word* is formed. If no man, no truth. There is, therefore, *no such thing* as eternal, immutable, everlasting Truth; unless mankind, such as they are at present, be also eternal, immutable, and everlasting. Two persons may contradict each other, and yet *both* speak truth." This is not only not common sense, but it is very bad logic. The argument runs thus: A man *trowed* or believed something to exist; he used the word troweth, troth, or truth, to express this belief; therefore *no such thing* existed. Again two men believed that two different things existed; they both used the same word to express the same belief: therefore the belief of both was equally well founded. Turn Mr. Tooke's sentences how we will, they come to this sort of reasoning. How

is such a circumstance to be accounted for, in a man of his acuteness? For that he was acute, his single remark "that the verb includes the noun and something more," incontestably proves. But his extraordinary sophisms arise wholly from his loose and hasty conception of the word *thing;* which, as he uses it, corresponds exactly to Mons. Condillac's *object*, and to Mr. Locke's *idea*; and really means *nothing;* that is to say, nothing certain, definite, or intelligible.

That the human mind embraces ETERNAL TRUTH, in the widest sense of these terms, it would be folly and madness to assert: but that none of the truths which it is formed to comprehend are eternal, is a proposition, to say the least of it, extremely bold. At all events, the circumstance that men, "such as they are at present," may not be able clearly to comprehend a given truth, is certainly no proof of its falsehood. Suppose a child does not well comprehend that *two* and *two* are *four*, are they the less so? Now, this is the case with all conceptions of number. We begin with unity, we proceed to multitude, we advance to numeration; but the elementary books of arithmetic will teach us, that this last is the introduction to that science by which Newton brought down the old divinities from their starry thrones, and converted lovely Venus and poet Jove into silent monitors of the lapse of time, and friendly guides of the adventurous navigator on a lonely ocean; that science, by which judicial astrology was forever confuted, and men learnt to gaze unmoved on the comet, which, as they once thought,

> ———from his horrid hair
> Shook pestilence and war.—

Such being the nature and power of the conceptions of number, let us enquire how, and on what principles it is that they are connected with other conceptions: and here it will be seen that these prineiples are founded in the essential nature of the *noun;* as *universal* and *particular; general*, *specific*, and *individual;* for the principal office of numbers is to apply science to fact, by distributing the genus into its species, and the species into its individuals; number, therefore, is the bond uniting the universal with the particular, the highest genus with the lowest individual, Eternal Truth with momentary sensation. Therefore it is, that PLATO says, "if we were to take out *number* from human nature, we should become void of thought on every subject;" which he again illustrates by observing, that an animal which has not the distinct conceptions of *two* and *three*, or *even* and *odd*, and consequently, is quite ignorant of *numeration*, can never give any account of those things, which he perceives by *sense* and *memory*.

"The genus," as Mr. Harris observes, "is found whole and entire in each one of its species." Thus the genus animal is found

in the different species, *man*, *horse* and *dog;* that is to say, a man is an animal, a horse is an animal, and a dog is an animal. By numbering the kinds, we find that the genus, though one, is capable of being conceived as many, and therefore we can speak of many animals. Again, "the species may be found whole and entire in the individual." Tnus Socrates is a man, Plato is a man, Xenophon is a man; and by applying the conception of number to the species of man, we call them three men. The plural number, therefore, belongs to *genera* and *species:* and accordingly we find all languages apply the plural number to words expressing *genera* and *species*, that is to say, to the words, which we have called common or appellative.

But the case is totally different with proper names, when strictly used as such; for in that case they are applied to individuals, and the individual is *not* found whole and entire in genus or species. The conception of Cæsar is not found whole and entire in the genus animal, or in the species man, or in the class of Romans, or of conquerors, or of generals, or of soldiers, or of scholars. The word Cæsar, therefore, when used to express the very individual who passed the Rubicon, and who spoke with so much affected liberality in behalf of the traitors engaged in the Catalinarian conspiracy, and who doubted of a future state, and who associated with the debauched and profligate Antony, and who at once flattered and subjugated the Roman people, cannot receive a plural termination; and for this reason, because the particular conception which it expresses cannot be associated with number; since there never never was nor ever will be more than one such man; who therefore spoke philosophically and truly, when he said—

For always I am Cæsar.

But if the word Cæsar be used to express a different conception; if it mean something which is also found whole and entire in Alexander, and Attila, and Jenghiz Khan, and Napoleon Buonaparte, then indeed "the *Cæsars*" is a proper grammatical form of speech; because the *noun* is no longer a proper name, but an appellative. Then we may reason on the Cæsars, as on a class or species, and what we say of one, will be equally true of another; but then the word, though the same in sound, will be very different in signification; and the reason which before prevented our adding to it the plural termination will no longer exist.

Mr. Harris has mentioned various ways in which a proper name may come to be used as an appellative. The persons indicated by it may, as members of the same family, or from other accidental causes, happen to bear the same name. Hence the expression of "the twelve Cæsars," to designate twelve Roman emperors who successively bore that name. Hence too, the *Howards*, *Pelhams*, and *Montagues*, "because a race or family is like a smaller sort

of species;" so that the family name extends to the kindred, as the specific name extends to the individuals. Again, another cause which contributes to make proper names plural, is the marked character of some individual who bears it, whether for eminent virtue, or for notorious vice, or simply for any thing extraordinary and sigular in his own conduct and opinions. It is thus that in speaking upon the subject of Grammar, we might not improperly say, "these are the opinions of a *Condillac!*" referring to an author of some celebrity, though, as we think, of remarkable inaccuracy in his view of that subject. So the odious cruelties of *Nero* have made his name a synonyme with the word *tyrant;* and on the same principle, Shylock, when he would express the the integrity and acuteness of the supposed young lawyer, exclaims,

A Daniel come to judgment! Yea, a Daniel!

ON THE ORIGIN AND PROGRESS OF LANGUAGE.

No inquiry, regarded as a medium through which to study the powers of mind, can be more suitable to the purpose than that which respects the origin and structure of those external signs which are used to denote the various operations of the mental faculties with which it is our object to become acquainted.

The difficulty of forming a system of artificial signs, by which men might communicate to one another their various thoughts and feelings, has appeared to some philosophers so very great, as to exceed the utmost efforts of human ingenuity. Such authors have, accordingly, ascribed the origin of language to the immediate interposition of Heaven; and in endeavoring to support this opinion by the authority of divine revelation, they remind us that Adam gave names to the numerous tribes of animals which were made to pass before him in the Garden of Eden. But this inspired language, it may be observed, in reply, must have been solely adapted to the limited circumstances in which the first man was placed; and could not exceed in the amount of its terms, the number of objects to which names were to be given. Indeed, an unwritten language must necessarily be restricted, in point of copiousness, to the few words, whether denoting things, or the relations of things, which may be necessary to express the simple conceptions of the people who employ it; and whatever might

have been the nature and extent of the original language now alluded to, we know that, at a future period, owing to the wickedness and presumption of mankind, it was entirely lost; and that, consequently, the human being was reduced to the necessity of inventing, anew, the art of communication, upon the strength of that sagacity and of those resources, which were originally furnished to him, in the constitution of his nature. Thus, it should seem, that the power of forming language, like the faculty of reason, and those other endowments which are engrafted upon our mental frame, was committed to the industry of man to bring it into use, and adapt it to his purpose, according as his knowledge of the things around him, became more extended and particular. At all events, there is not, perhaps, in the wide field of human discovery, one invention which affords a stronger proof of the natural ingenuity of our race; for it admits not of doubt that the art of embodying thought and feeling, in sensible signs, must have made considerable progress, at a very early period, and before the introduction of other arts could have adorned the intercourse of society.

In his rudest and most uncultivated state, the language of man is of the same kind with that of the inferior animals; differing only in the greater degree of perfection which arises from the higher and more noble faculties possessed by the former. On this account, the collection of signs, *audible* and *visible*, by means of which communication is then carried on, is denominated natural language—being those particular manifestations of *want*, of *desire*, or of *intention*, to which man is prompted by the constitution of his nature to make, and also to understand when made by others. In attempting, however, to trace the progress of this wonderful art, we find ourselves necessarily unprovided with any regular history of its origin, and of the steps by which it advanced, both because the invention of writing was long posterior to the use of articulate sounds, and also because great advancement must have been made in it, before the attention of mankind could be directed to an analysis of those particular *workings of their minds*, upon which the origin and structure of speech are found chiefly to depend. Nor can any assistance in our researches, be derived from examining the formation even of such languages as appear the most original. Their analogies are too perfect, and their general structure too complete, to serve the purpose of leading us back to the first essays, and rude beginnings, of verbal intercourse; when men spake from their feelings rather than from their reason, and gave utterance to ardent emotion rather than to profound reflection. We are left, therefore, in this research, to note, in the first instance, the various resources which necessity might be supposed to create; and afterwards to guide our opinions by the knowledge which we possess of the laws of association,

modifying the exertions of the human mind in the formation of an artificial and conventional language.

The reader will best form a notion of the manner in which men communicate by natural signs, by supposing two solitary savages to meet together for the first time. After mutual surprise, they would perceive their resemblance, in many respects, to each other; and each would conclude that the other was constituted with similar powers, possessing a similar principle of life and motion, and affected in a similar way by the same objects. The one, prompted by a powerful sensation of hunger or of fear, would be understood by the other, who, in like circumstances, had experienced similar sensations. If the objects or causes of such emotions were present, it would be easy to make signs, whereby to point them out: if these objects were not present, an attempt would be made to indicate them, by imitating certain *sounds*, *motions*, or *actions*, peculiar to them, or in some degree descriptive of them: and lastly, if it were necessary to make a communication respecting things which are not objects of sense—an inference of the understanding, for example, or a sentiment of the heart, the natural sagacity of the human mind would suggest some analogy between these impressions, and the qualities of sensible objects, by which they might be represented to the imagination, and conveyed to the feelings of the auditor.

Such are the elements of the language of nature—an instrument originally calculated for denoting and describing those objects which address themselves immediately to the external senses, or which are closely connected with the several sensations which are made through the medium of these senses; and which, of consequence, could alone fully answer the purpose of communication, when intercourse among men was almost exclusively confined to outward and sensible objects. It is obvious, however, that this mode of communication must have been gradually extended and improved, as society enlarged, and the number of objects and ideas increased; but, being ourselves in possession of a more perfect system of language, we cannot easily be brought to comprehend to what a degree of perfection such a mode of communication is capable of being carried. Some notion of it, indeed, may be formed by attending to the progress of natural language in children—to the efforts of dumb persons—to the art of pantomine, and to the modes of conducting traffic among rude nations, unacquainted with one another's language.

These subjects afford useful, and at the same time, very amusing materials for the teacher's oral instruction to his pupils. They lead the mind of the learner to the history of remote ages, and supply him with interesting views of human nature in its progress towards civilization.

A contest, for instance, is recorded to have taken place between Cicero and the famous actor Roscius. The actor challenged Cicero to give him a sentiment which he could not express by significant gestures. Cicero accepted the challenge, and gave him a subject; —a passage, it is probable, selected from one of his most animated orations. Roscius expressed the meaning to Cicero's satisfaction. The latter then made some change in the sentiment, and varied the tone of passion; while the former, with great facility, accommodated his natural language to the several changes which were thus introduced. Still, it will be readily admitted, that this mode of communication was, in many respects, essentially defective. It was the perception of its defects, the increasing necessity for a more perfect system of signs, which, in process of time, gave birth to the most surprising and useful of all human inventions, an artificial language; consisting of *sounds* having scarcely any natural resemblance to the things signified. This effort of ingenuity, too, appears still more astonishing, when it is considered that the principal steps which led to its establishment were taken in those periods of society which are usually thought rude and ignorant: and, indeed, it is a remarkable fact, that no nation, however uncivilized, has been found altogether destitute of a spoken language.

It has been already remarked that, from the very nature of the case, and owing to the want of early documents, which, perhaps, were once in existence, we are unable to trace the history of human speech. Still the mere attempt to mark the probable steps by which the inventors and improvers of language were conducted, in their departure from the expression of natural signs to that of an *artificial notation*, will not fail to prove of considerable use.

During the existence of natural language, as the sole vehicle of communication, it must have been found, that, of all the classes of natural signs, those by the voice were capable of the greatest distinctness and variety. Vocal intonations, too, are, in some respects, the most natural expression of feeling; and the application of sounds to denote external objects, must have been much promoted by the principles of *association* and imitation, which lead men to use, as the names of things, the particular *sounds* which any of these objects respectively emit. Thus, every one has had an opportunity of observing the disposition in children to call domestic animals by names resembling the several sounds which these animals utter. Many analogies and relations are, in like manner, to be observed between *sounds* and *objects* not animate. Their *loudness*, their *lowness*, their *softness*, their *hardness*, their *quickness*, and their *slowness*, may all be associated with objects possessing qualities of a similar character. In the early periods of language, in fact, men are unacquainted with words

altogether arbitrary. Prompted by necessity, aided by the powers of imagination and association, in discovering analogous sounds, and guided by reason in the application of them, their number of imitative vocables, in due time, becomes so great as to form the basis of a regular language. The sounds first made use of in primitive languages, it is therefore very probable, represented a whole action or event; the same terms denoting at once the principal occurrence, and the several circumstances connected with it; and, as the words in the Iroquoise and other rude languages are, in general, very long, it is not unlikely that these tongues have not yet arrived at that state of improvement, at which the parts of speech are broken down into smaller fragments, expressing, separately, the various ideas which enter into the conception of a complex object.

In following out this subject, we find it useful to bring into view certain questions which have been agitated by writers, in relation to the topics under consideration; as having a strong tendency to awaken attention in the minds of young people. The following may be given as a specimen: "How do men learn to appropriate artificial signs as the names of things before the connection between the two ideas has been confirmed by association? How came the sounds *horse*,—*house*,—*cow*—at first to represent objects with which they have no material connexion or resemblance?" It is answered—by the aid of natural language. The sound is uttered, and a look or gesture indicates the object to which it is to be applied. Repeated efforts of this kind must, no doubt, be made, before the power of association can perform its office without the directing sign; but no sooner does experience form the connecting link, than natural language ceases to be necessary. In this respect, the language of nature serves as a hand-maid to the language of art; affording assistance whenever it is necessary, and retiring from view when assistance is no longer required. This connexion, or alliance, may be traced even where artificial language has reached its ordinary degree of perfection. When a person, for example, finds that he cannot clearly convey his conception of a visible object by words, he naturally attempts it by an outline of the subject, or by gesture; and on all occasions, much force may be added to the verbal expression by means of natural language; of which the range is much more extensive than can ever be acquired by mere artificial signs. Indeed, the perfection of spoken language consists in a happy combination of both.

Again, it is asked, in what manner, and by what steps, do mental, or intellectual objects,—*thoughts*,—*trains of reasoning*, and *conclusions of the understanding*,—come to be represented by artificial signs? The answer is easy, and the ground upon which it rests, is fully explained in the following, viz. The language of the senses is the foundation of the language of mind. The signs

which represent sensible objects, are applied figuratively to mental phenomena; and, from an analogy more or less remote, the terms used to describe the qualities, and mark the relations of the former, are transferred to express our notions relative to the latter. Thus, a person is nearly as well understood, when he speaks of the *extent*, *comprehension*, *depth*, and *acuteness of the mind*, as when he applies them to material objects, possessing the same qualities. *Cold*, *soft*, *hard*, applied to the *heart*, *agitations*, *storms*, *tumults*, denoting states of mind, are at all times applied to objects of sense, and afterwards, from some fancied resemblance, transferred to the feelings and passions. The words *above*, *below*, *before*, *behind*, *on the right hand*, and *on the left hand*, are as intelligible, when applied to mental relations, as in their primary applications to those which are sensible and local.

In conclusion,—in whatever country, and at whatever period, the departure from natural language, and the progress towards that of convention, took place, that progress must have been slow and gradual. It is not to be supposed, that any nation, feeling the defects of their existing language, would assemble together, and adopt a general resolution to depart at once from their former mode of communication, and to adopt an entire new system of artificial signs. The slightest attention to the principles of the human mind, and to the history of society, must satisfy us that such a measure is impossible. Men do not invent signs until they want them, and then only gradually, as their necessities require. In our endeavors to trace the origin and progress of artificial language, it must not be forgotten, that, in this, as in every other art, many important and very difficult steps have been gained, not in the ordinary course of things, but by the invention and sagacity of men of superior talents, whose attention may have been particularly directed to the subject. It is the natural province of genius, when conversant with the arts, to remove obstacles, to supply resources, and to practice methods above the reach of ordinary abilities; and, in the early stages of a conventional language, there can be no doubt that many individuals, more ardent and successful than others, must have occasionally arisen, though the barren history of those times has not preserved the particular names of those to whom mankind are so much indebted.

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REMARKS ON THE PRESERVATION OF HEALTH AMONG THE INMATES OF SCHOOLS AND COLLEGES.

BY WILLIAM WOOD, M. D.

NO. III.

The classification of students and scholars, is a matter of much importance in the preservation of health. All the pupils will not learn alike. Some can commit a given quantity, or solve a difficult problem, in a short time, with but little effort, while it appears almost impossible for others to learn, however laborious they may be in their trials. To require both to remain in the same class, and to perform equal tasks in the same time, is unreasonable. Close study wears out the constitution with great rapidity; especially towards the termination of a protracted pupilage, when students are often more or less dyspeptic. Indeed nothing increases certain kinds of dyspepsia more than intense application. Physicians frequently find it impossible to cure it, in laborious students, without turning their minds in opposite channels. Let the confirmed dyspeptic leave the recitation room, take a journey, either on foot or otherwise, into the country, forget his Classics, his Mathematics, and his Astronomy; admire the beauties of nature, and snuff the mountain breeze, and he will generally recover without the aid of a physician.

It may be said that the exercise has been the means of effecting a cure; but if he return to the University, resume his studies, and take the same amount of exercise every day, his disease will soon be as bad as ever, especially if his mind be occupied as before. This kind of dyspepsia depends upon a derangement of the nervous system, which is the result of an intense devotion of the mind to particular subjects. Such students should form separate classes. They should not be allowed to ruin their constitutions in order to perform as much as those who are more favorably organized.

Nothing contributes more to the preservation of the health of students of all ages and classes than exercise in the open air. To be useful it must not be sufficiently severe to exhaust the energies of the system, whilst it should be so varied as to call into play all the muscles of volition. It should also be continued until the individual feels its effects, but in no instance until prostration is the result.

The great difficulty among scholars in early life is the want of a proper regulation of their exercise. It is mostly either too laborious, or continued for too long a time. All cannot equally bear a fatiguing play, and yet they usually engage promiscuously in games, where an ambitious rivalry is encouraged, and each is anxious to continue until the contest is fully decided. This is altogether wrong. A boy inclined to asthma or consumption may have a fatal disease implanted in his lungs by prostration even from play, especially if he be exposed to a cold or damp atmosphere before he recovers from its effects.

The same remarks will apply to teachers, and professional students, of sedentary habits, who have left the class-room.

As already hinted, it would be difficult to decide what kind of exercise would be the most beneficial in the preservation of health. It would certainly vary with the location of the institution. If it were in the country, or even surrounded by large play-grounds in cities or villages, many of the games at ball would be both useful and interesting. Here, the exercise is not usually so severe as to produce immediate prostration, while the excitement of the game is sufficient to draw the mind off from its previous studies. But it is probable, that the exercise might be so arranged as to be profitable to the student, in a pecuniary point of view, as well as invigorating to his body and mind. Manual labor schools have been projected for this purpose; but it is questionable whether they will afford all the advantages anticipated. Exercise in order to be useful must not only engage the different classes of muscles of volition, but it must also so far employ the mind, as to divert it from its former engagements.

It is possible for a part of the muscular system to perform a great amount of labor, while the mind is completely absorbed in the solution of a difficult problem, which had fully occupied it for some time previous; for it is well known, that even sleep sometimes cannot cover with momentary oblivion, the intense engagements of the day. The student will occasionally solve a question in his dreams which had baffled all his efforts during school hours. The kind of exercise, therefore, which affords no relief to the most important part of the student—the mind—will be of little avail in the preservation of his health. The material and immaterial parts of man are so intimately connected, that the improvement of the one will generally benefit the other; yet it is possible for either to be exhausted, nay entirely worn out, while the other is under the most wholesome discipline. The student, for instance, might walk, or even work at a bench, until he was absolutely fatigued, and yet his mind might be as actively engaged as it was, when he was in the midst of his recitations in the class-room. Indeed, this species of exercise might not only do no good, but be decidedly

injurious according to the temperament of the student, and the times at which it was taken.

It is well known to physiologists, that the various parts of the system are not only supplied with blood according to the amount of labor they perform, but that the different organs contain more blood when in a state of activity than when at rest. In sound sleep, this fluid, so necessary to the growth and repair of the body, is equally distributed throughout the system, in proportion to the size and vascularity of its members; but when the individual is awake, there is a continued ebb and flow from one to the other, as the will, in one sense, may determine. Thus, if the mind is intently engaged, its organ or instrument, the brain, makes greater demands upon the other parts for blood, than when it is inactive. The same is true of the stomach. After it receives the food necessary for the support of the body, there is a flow of blood into it, to complete digestion. So, also, of the muscular system. When engaged in walking, playing, or laboring, the vital fluid finds its way, in increased quantities, into the extremities or other parts where the exercise is greatest. Now if the student habitually engages in intense study, directly after indulging in his meals, the stomach may be unable to obtain the blood necessary to finish the work of digestion, and dyspepsia is the result. Too much is retained in the brain, and of course the most urgent demands of the stomach will be unavailing.

But suppose the student arises from his meals, and goes to the work-shop, or walks with a rapid step, over the same grounds he has traversed a hundred times, for the exercise which he thinks highly important to maintain his health, what is the result? In either case he may labor with his hands, or more rapidly with his locomotive organs, and still have his mind engaged in intense thought. Here the brain, the stomach, and the muscles of volition, call, at the same moment, for their appropriate stimulus, but they cannot all receive it, and the stomach, being more modest and of course less urgent in its demands, gives way to the others, and remains quiet for the present. But if the same course is repeated from day to day, it becomes restless under the treatment of its associates; it determines on revenge, and refuses to supply the vessels, and other organs, with the materials for the formation of new blood,—it either rejects the food thrown into it, or hurries it forward, unchanged, into the other abdominal viscera, where it acts as an irritant until it is finally ejected. The result is an overthrow of all the organs of animal life. The stomach, it is true, suffers with the rest, but it chooses to be involved in the general desolation, rather than allow its enemies to enjoy its privileges unmolested. It at last triumphs, but only in death.

The student who adopts this plan, wonders why he is dyspeptic—why his energies are daily more and more prostrated—why he is constantly growing more and more languid! His teachers tell him to take more exercise; but this he finds only increases his complaints,—besides, he is sure he takes as much as his associates, who only play while he walks or labors; and yet they are robust and healthy. It is true, he takes quite as much exercise as they, but then he takes it at different times, and in a different manner. It is more than probable that, with them, the difference is the result of accident, for but few of the best scholars in our literary institutions are at all acquainted with the rudiments of physiology, and of course unprepared to give their pupils the instruction necessary for the preservation of their health.

From what has already been said, it is evident that the student should not take his daily exercise immediately after his meals, or when his mind is occupied with his former studies. When he walks, works, or plays, he should think of the business of the moment, and not allow his mind to wander back upon the engagements of the class-room.

The most proper time to take exercise for health, is immediately before meals. For this purpose the student should rise early, cast his mind over the labor of the last day, fix what he wishes to perform before he again sleeps, and then proceed to take an hour's active exercise. He may either walk forth with a quick pace, to view the glories of the morning, listen to the songs of the birds, or, at certain seasons of the year, if he have a taste for botany, gather the rudiments of a future herbarium, or he may repair to the play-ground or work-shop, where he may spend the time with pleasure and advantage. He should exercise as many of his muscles as possible, until he feels the approach of fatigue, when he should return to his breakfast, which he will probably eat with a good appetite. In a half hour after this is finished, which time he may employ in some innocent amusement, he is prepared to resume the labors of the day. After dinner, he should rest from study one or two hours. He may spend this time as he did the interval between his breakfast and the commencement of school-hours. Before supper, he should again take one or two hours exercise; and after the whole is over, retire to rest, in time to get at least six, or at most seven, hours sleep, before the following morning.

The student who follows this course, will leave the walls of his *alma mater* with a constitution, unless it was previously bad, that will wear for years in common life. He will not return to his home the pale, emaciated image of what he once was. Instead of the hectic flush, the sunken eye, the trembling step, the deep, sepulchral cough, and the irritable and feeble mind, which too

often attend the return of students to their homes, he will present, if he has pursued a proper course otherwise, a perfect example of "a sound mind in a sound body," if such were the case in early life.

ELEMENTARY BOOKS.

Education is the order of the day. Human beings, it is affirmed, are to be rendered intellectually and morally perfect through its means. Towards the accomplishment of this end, educational systems and school-books of every "cast and kind" are pouring upon the public in almost countless numbers.

The civilized world seems to have become a great manufacturing book-shop. Volumes of every description, from the abecedarian to the ponderous tomes of science, are prepared with magic facility. Scissors and quills, kind reviewers and forthcoming puffs, are constantly in readiness for action; and, books, no matter what may be their real merit, "if gilded and embossed," pass for sterling value. The same spirit that aims to deceive the mind through the medium of the visual organ by *gold leaf and morocco*, has extended itself to a class of books, which should be most carefully written.

It is matter of surprise to scientific men, that the character of the mass of elementary works, and some of the modes of instruction to which they have given rise, have not long before this received the pointed reprobation of the intelligent. Men of learning and judgment see, that they are unsubstantial and useless. But this is not the case with the multitude who, in general, receive their opinions at second hand, from the periodic press, or from interested individuals. All who observe, may see, that it is not reason which decides on the true character of "books and systems," and bears off the prize of correctness and usefulness; but feelings and prejudices excited mainly by the constant clamor which is kept up by those concerned, through the medium of the public journals. Does any one of common sense require to be told what the character is of the greater part of miscellaneous and school books which daily appear? His intellectual organs must be very obtuse, if he do not see and know. But it would seem useless to multiply words upon this subject. Authors will write, and booksellers puff; and no man, as Hume observes, needs ever

despair of gaining proselytes to the most extravagant opinions and systems, who has *art* enough to represent them in any favorable colors. The victory is not to be gained by the men at arms, but by the *trumpeters* and *drummers*.

The fact of the inadequacy of primary books has often been remarked by the scientific. Sir David Brewster* observes, that it has long been a reproach against English literature, that the composition of elementary and popular works has been left almost exclusively in the hands of inferior writers, who possess only a general knowledge of the subjects of which they treat. The influence of this practice upon the diffusion of general and correct knowledge, has been deeply felt by those who are desirous of introducing a system of education which embraces a wider range than the ordinary course of instruction. The writings of such men differ very widely from the clear-headed, who select at once the prominent features of the science which it is proposed to explain; exclude all extraneous matter, and combine under general views the important truths which it is the object of the pupil to seize and retain.

A late English writer remarks, that there are two classes of persons upon whom education produces very different effects. The first, containing the smaller number, consist of those who, in learning words and facts, have reasoned upon them, and have learned to make that which they do know, the means of discovering that which they do not. To these persons, words are not knowledge, but a method of receiving and communicating it. The second, and much the larger class, have not penetrated beyond the surface, and have considered *words only*, without *seizing principles*, and do not discover the inferior character of their attainments, until put upon inquiries which demand *original* thought, or, which is perhaps a better test, until they are called to communicate instruction to others, and especially to the young. The individuals of this class, who understand better the meaning of one word than of two put together, place a high value upon words, as all will on their most precious possessions, be their intrinsic merit what it may.

Now it so happens, "that the writing of elementary books for the young, has, for the most part, fallen into the hands of the latter description of persons. The reason is, that those more highly qualified, too often feel a sort of disdain for so lowly an occupation, as they think it; not being aware of the difficulty of the task and of the high order both of talent and of knowledge which it demands. They do not reflect on the clearness of perception which it is necessary to have, in order to put facts into

* In his Edition of Euler's Letters on Natural Philosophy.

such a shape as to make those reason to whom the employment is new. This clearness of perception is the consequence of a certain habit of considering the elements, in which deeply learned men are sometimes as deficient as the most ignorant. It is not *what* has been gained, but *how* it has been gained; what *habits* of mind have been formed in the acquisition, which distinguish the man who is fit to teach, from him who is not."*

Among authors of this class, the opinion is prevalent, that the language and matter of books should be levelled *down* to the capacity of the pupil, and that his *mind* should not be led *up* to the knowledge of these. In order to this, the style of the nursery has been introduced, and works are filled with explanations of every trifling circumstance and every rule. The effect of the former is that the pupil's language becomes puerile, and of the latter, that all necessity for exertion of mind, and of independent thought, is most surely and fatally cut off. Unfortunately for youth, the great mass of works for schools is so constructed, as in effect to do all the labor which in order to radical knowledge, they should do themselves. It may be taken for granted, that so long as books on this plan, are used, or, so long as teachers perform the labor which should be done by their scholars, nothing beneficial or solid can be expected to result to them, and their minds will, in reality, be very little, if any more improved at the close than at the commencement of their academic career.

The greater part of school books in present use, has, in consequence of erroneous views of the object of education, been written to render literary acquisitions easy to learners, or, in other words, to save them the labor of thinking. Committing to memory whatever is put before them, is found to be far less laborious than forming one idea out of others, or reasoning upon facts. Hence has sprung that mode so universally adopted by authors, and so much approved by incapable teachers, of forming set questions on the text, and making one set of phrases suggest another to the memory. To these questions, placed sometimes at the bottom of the pages,

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* Much is said, at present, about the Prussian system of Education. It ought to be remembered by those who talk much concerning it, that books of the class we condemn, are not recognized by it. The spirit for constructing school-books upon what is denominated the Prussian, or the German plan, is becoming rife in the United States. It is easy indeed to prate about a thing, and still be very ignorant of its nature, or real character. So we venture to say it is in relation to this subject. The same mania, for book-making on the Pestalozzi mode was general, when he first became known in our country, and he was made to father modes of teaching which he never dreamed of. It would be well for those who sputter (we know of no more appropriate word to express our meaning,) about the beauties of the Prussian system to examine into its real character.—See Professor Stowe's article, page 147—Academician, No. 3.

and at other times, in a separate book, children are required to learn by heart certain answers. How easy it is to put an interrogative to them, and how easily they learn by rote a response, every person of the least observation must have seen. Suppose, for example, an instructer should ask a scholar, what law obtains in gravitation, and the scholar should answer in the *words of the book*, that it is in the inverse ratio of the square of the distance; or, suppose the question to be, what is muriatic acid, and he should reply, it is a compound of chlorine and hydrogen: would it follow as a consequence that he understood the former, or had any knowledge of the properties of the elements which form the latter? It no more shows, that the pupil understood what he repeated, than that a parrot is able to read, because it can utter certain intelligible sounds. All that can be justly inferred is, that the words composing the answer have been faithfully committed to memory. This every experienced teacher sees daily, and knows to his vexation, that scholars will learn page after page, without obtaining a single clear idea, or getting a single principle understandingly.*

It may be asked why we object to books formed upon this plan. We answer, that they are of injurious consequences in the incipient stages of instruction. They favor not only the inability of those who assume to teach, but they foster in scholars, habits of mind at variance with all mental exertion and sound knowledge. Besides, they are inviting books to parents who know nothing of science, and any thing that promises ease to children in this age of foolish indulgence, and rapid acquisitions which may especially be turned to the account of making money, is very apt to receive popularity. But we would advise those who are advocates for this mere "*question and answer system*," before they put such books into the hands of pupils, "to ask themselves whether they desire them to get wisdom and understanding, or words and phrases. Will learning by heart, conventional terms, form habits of reflection?" If so, *chronological tables* will answer every purpose.

The interrogative mode of instruction is undoubtedly the correct one. Questions, proposed *viva voce* by the teacher upon the text, and growing out of it, and illustrated clearly and forcibly, are the life and soul of teaching. But the value of this system does not depend upon any *particular set* of questions, but on the *mode* in which the questions are put for the purpose of presenting the matter of every lesson in a new and clearer form, and the effect which they have in producing thought and reasoning on the part

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* Pupils should be taught that every word used in their lessons modifies, in some respect, the idea intended to be conveyed, and that, therefore, to understand the whole meaning, they should understand each individual part.

of learners. Nor, we might add, should interrogatories be put which are beyond their comprehension. Elementary principles, says a sound writer, should never be taught in any department of knowledge by asking questions, the nature and extent of which the scholars cannot judge, and then, making them commit to memory the answers which are equally unintelligible.

We are firmly persuaded, that few causes have contributed more to retard solid education than *question and answer* books. The human mind, in the period of youth, is averse from serious study, and rejoices to facilitate the means of arriving at its end. With questions then adapted to *certain* parts of the text, before them, it is not probable, that the young, on account of any remote benefit, will turn from the present ease which they enjoy, to reflect calmly upon what they read, or learn by heart, or follow out the train of reflections which the matter before them may suggest. The truth is, this labor-saving machinery is fatal to the proper development of mind, which it is one of the objects of education to effect. May we not apply the words of old Joannes Burton, which have often been applied in reference to the use of translations by those who are studying the Greek and Latin languages? "When the boy," says he, "has these helps and incitements to idleness at hand, he will make less use of his own powers of understanding. Henceforth he will not attend to the grammar or lexicon. Assisted by the wealth of others, he will bring nothing from his own store. In a word, *he will think it no longer* necessary, that any thing should be done by his *own personal exertion;* and, like an inelegant stranger, in an unknown country, submitting to be led by a blundering and treacherous guide, he will wander without knowing whither he is going."*

It is well known among experienced and able teachers, what the usual mode is of proceeding with pupils, who recite their lessons from books on the *yes and no* plan. Omitting exemplifications of the manner, we may remark, that clear and correct ideas can only be obtained by reasoning, which is a continued series of facts, and inferences growing out of them. This operation, therefore, requires great attention and considerable force of mind, and a number of facts which the mind, from its own energy, must so combine as to lead to some conclusion. Now, in the mere question and answer system, an isolated interrogative is put, and a certain answer, in the words of the book, is given; a second follows, and

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* Cum hæc ignaviæ subsidia simul et incitamenta in promptu habeat, parcius viribus ingenii utetur sui; nullum porro in re grammatica, nullam in lexicographis impendet curam; opibus alienis adjutus nihil de suo promet; nihil denum marte proprio sibi elaborandum esse censebit: et velut in regione ignota hospes inelegans ducem secutus aliquando falsum, sæpe fallacem, huc illuc temere circumvagabitur.

a similar response, and so on to the close of the lesson. In all this, it must be perceived, that there is no connection of ideas; that a large portion of the matter of the book has been omitted between each of the answers, and that all the scholar has gained is the statement, that such an event did or did not take place. But, so far as the just relation of historical events, for example, is concerned, and the growing of one out of another as cause and effect; the springs of human action, and how they are modified by circumstances; the characters of actors and the shades of character as they were or are; what causes contributed to individual or national greatness, and what to the opposite state of things; all these and more, are wholly overlooked by the *modern mode* of interrogation. Unfortunately, the teacher is too apt to think his task performed, if he ask some twenty or thirty questions, and he receive from his scholars the same number of correct responses, in the words of the book, or, which is the same thing, from mere memory.

We do not affirm, that deep and extensive comparison or judgment, is to be expected from young people. All that we contend for is, that, this should be always deemed of far greater consequence than the most correct exercises, performed through mere memory. Nor are all youth alike in power of judging. Some perceive the connection between things almost instantly, while others are almost wholly incapable of exercising this act of mind. We refer here, it will be noticed, to the operation of their judgments on very simple and familiar objects. And, it is on these simple and familiar objects, that the early discipline of education should be exerted. But, in general, the operation of judging forms no part of young people's education. With few exceptions, they are never taught to think, and we are endeavoring to show, that they never will learn to think by the question system alone. Unfortunately they are led to believe, that their parents and teachers will think for them, until they are men and women, when they are to begin thinking for themselves. Thus, at that time, they commence, as it were, a new business, for which they have not had the least preparation, and look upon the exercise of the reasoning powers, as if it belonged to a particular period of life, and that it is as easy to think correctly as it is to eat or to sleep. "Sad experience will convince every individual of the falsity of this opinion. What security is there in the conduct of those who are thus unprepared to meet the allurements and incentives to vice and indulgence, which every where will surround them on their entrance into the world. Their habits are the offspring of *dependence:* for the want of a good foundation, they are easily led into error by the persuasion and ridicule of those already initiated into vicious practices, or by the combination of circumstances which offer a temptation. The persuasion, that they have

not the power of forming a judgment, is quite sufficient to prevent them from trying it."

We dwell upon this subject for additional reasons. This system gives play to what we would call local memory, but excludes the recollective, and takes no account, philosophically speaking, of the association of ideas; a faculty of mind of the highest importance in education, but which unfortunately, is almost wholly overlooked in present modes of instruction. We are advocates, however, for the due cultivation of the memory; because we consider it as the hand-maid of all learning. We object only to exclusive attention to it, or to its power being diverted from its legitimate office. It is easier for the young to remember than to draw just inferences from data. Hence, unless great care be taken, the memory takes the lead in the acquisition of knowledge, if we may venture to call it so, and mere words are accumulated in the mind for substantial facts. But these sounds are not real information, and they can no more produce the just discipline of the mind and the moral affections than one unmeaning word can explain another, or the dead can converse with the living. We may spend a whole life in repeating sounds, and be no nearer the object of all knowledge, *truth*, than we were at the period of birth. But when ideas, on the other hand, are made the object of attention, we commence correctly the process of education. "They are bound together by a perpetual association, and every operation by which we acquire them, serves to lighten the burden of recollection, and to diminish the objects of mere memory. Sounds and ideas are connected by the operation of perceiving; the names and the things they express mutually recall each other. And by the operation of compounding, comparing and analyzing, the connection between modes and substances, between substances and their parts, between causes and effects, and the ideas we have of them, are perpetually revived by the recollection. The operation of combining gives us general ideas of the particulars included under them. The operation of judging affords us a vast variety of ideas which are produced by combination."

Now all these processes of mind are overlooked in the question and answer system. The only reason, then, teachers of intelligence can have for using works based on this plan, is, in the language of book-makers, that they lighten their labor. This is undoubtedly true, for, they are so arranged as to render it unnecessary for the scholars themselves to labor at their work. It may be easily inferred, that such books may *eminently* serve the purposes of those who are ignorant of the branches which they undertake to teach, and it must be evident, that books, which favor the *ease* and *comfort* of individuals, are of little or no use towards invigorating the minds of students.

In connection with books of the character we have been considering, may be mentioned the "pictorial system."* Nothing, at the present day, in the form of a book, will make its way unless pictures stare upon every page. They seem to have become, in the minds of many people, an essential feature of every work; and it is probable, that pictures afford to such individuals about the same portion of information as the reading matter itself. Neither sound sense nor refined taste can be pleased or instructed by ill-executed and unnatural delineations of things.

These remarks, it is true, are applicable to the multitude of publications which are constantly coming from the press. It is no uncommon thing to see a volume, half-filled with pictures, representations of all and every thing, except what is real and natural, passing into extensive circulation. But, it may be asked, what solid benefit is received by the readers of works equally divided between badly executed pictures and trifling matter. Not a subject in books of this class, in general, is carried out in all its bearings. They are mostly made up with extracts from this or that author, a little tale here, a scrap of science there, an anecdote on one page, and a love-story on another. We should feel somewhat for a reader of such kind of matter, who should be required to exhibit either in oral or written language, before a body of sensible people, the information he had acquired, or the train of thought which had been excited in his mind, by their perusal.

It is urged by those who deal in works of this kind, that they will cause many to read, who otherwise would not, and that hence they may receive a taste for reading. All this may be true: But whither must tend such taste, if it can be gratified with matter of the most frivolous nature? It cannot be supposed that such matter will create a relish for that which is refined in sentiment or profound in thought, any more than the constant reading of base and obscene books will implant in the human heart, correct moral feelings, or, that vicious and licentious companions will produce a reform in the habits and manners of those who are as corrupt as themselves. It is a mistaken idea, that it is of little consequence, what kind of reading matter occupies attention, so long as the desire for reading is created; and every one who has observed the effects produced on mind, and often on morals, through error of opinion on this subject, must regret that works of this description have so wide a range as they have among the people.

But suppose that they are read for amusement. What then? We answer, is it the part of rationality to seek nothing but amuse-

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* Much valuable matter is excluded by pictures. If to the space occupied by these, is added that which is taken up by questions, it will be found, that, at least, one third of the pages of school-books in general, is devoted to materials of no use whatever to scholars.

ment? Are the faculties of man, so bountifully given him by his Creator, to be viewed in no other light, than as contributing to the *mode* of spending time idly? The individual who seeks nothing but amusement, no matter in what shape it may be, is, to say the least, a frivolous and useless being; and he who would promise himself high honor and great usefulness, must look to something beyond mere gratification;—to proper cultivation of mind, and to those objects which are worthy of contemplation and pursuit.

If these remarks apply with force to a class of works widely diffused and eagerly sought at present, we consider them far more applicable, in their general bearing, to that order, designated school books. The arguments in favor of them may be summed up in few words, viz: "Pictures please children;—and give them correct ideas of things." On these points we shall make a few observations.

On the former of these positions, we remark, that pictures may please indeed, but nothing else. But we are not sure, that it is right to give children a notion, that they are to do nothing but to please themselves. We are of opinion, that they ought to be taught as soon as possible, from the outset, that they have regular business to perform; and we say this, because we think it will be laying the foundation of a habit of application and attention. These may be made by due care, to take root and grow much sooner than is generally believed. The young mind is easily moulded into any form; and, it has become a proverb, "that as the twig is bent, the tree is inclined." We do not mean by what has been said, that very young children are to be put to the elements of learning, and bound down to them, hour after hour, and compelled to dig and work, as it were, at these elements, so as to make the labor painful to them; but, merely, that they should be taught, from the beginning, to submit patiently to labor, even of the lightest kind, and to bear their proper portion. They will, thus, be better prepared to undergo with firmness the many troubles which, in after years, they will most probably experience. We advocate the blending of the rigid with the agreeable when it can be properly done; but we certainly do not wish to see come into use, any plan of instruction which may injure the inexperienced young, while it indulges a mere idle curiosity. "Dangerous habits of mind are formed often in very early life; and, to lead children to suppose that they have nothing to do which is not conducive to pleasure, is to give them a degree of levity, and a turn for dissipation, which will certainly prevent their improvement, and may, perhaps, at a future period, occasion their ruin." Plausible arguments, however, may be urged in favor of cuts or pictures in children's books; but we look upon all such, as *argumenta ad matres.* Say what you will in their favor, it amounts at last to this, that young children will pass hours in looking over the cuts of a book, whether they are well or ill

executed, without knowing what they are intended to represent, and without having derived a solitary clear idea of any one thing. They may possibly keep them from talking or playing while at home or at school; but we may look in vain for any useful effect from them upon their minds.

Pictures address the senses; and the human being is too much their slave. It is the object and end of education to liberate him from the bondage, and to make him intellectual. The most sagacious and penetrating minds are those which have been least addicted to the sensible. Sensible symbols are unfavorable to abstraction. The weak may require them. Crutches are needed for the sick and lame, not for the healthy and sound.—Is it probable that Plato, or Archimedes, or Newton, or La Grange, became what all civilized nations acknowledge them to be, master spirits in the intellectual world, by whiling away their young days over *pictures*, and answering *yes* and *no?* In the name of common sense, what would these illustrious men say, could they revisit our earthly sphere, and witness the *mockeries* practised under the *name of improvements*, and hear young persons prating about the laws which govern the universe, giving answers from memory, to problems, the resolution of which tried the extent of their vast intellects; and to see the same youth, the next moment, turning over the pages of school-books, *seeking wisdom and science in a picture.*

Upon the second point, that pictures convey correct impressions of things to the mind of children, we venture the opinion, that no such result is produced. It is well known, that in order to form any connection in the mind, it is necessary that the impressions received from objects, be clear, distinct and comprehensive. And although the ideas which we acquire, at first, by perception, are mere general outlines, or symbols of things, as they strike upon our senses, yet it is equally necessary to render these general ideas so vivid and distinct, that things may not be confounded which are really different in their natures. Thus, in order to form an idea of a horse, it is necessary to fix upon the mind the image of that animal so strongly, that whenever seen, he may be distinguished from all other animals. This will result from seeing the reality, and noting his properties and proportions. But the picture representative of the horse, is generally on the same scale as the elephant, and that of a squirrel is of the size of a lion.

Verbal description and pictorial representations are inadequate to the end proposed. The deficiency of the former is manifest, when those addressed are ignorant of the use and application of terms. So far as the qualities and properties of external objects are concerned, the latter is wholly useless. No picture can represent these: and no picture is as perfect as the original object. Nor ought we to be contented with barely showing youth images upon

paper. That they do not carry to the mind correct ideas, will be obvious to every one, who has noticed how common it is for children, after a long examination of the pictures of certain animals, to ask what those very animals are, when they afterwards happen to see them. If we wish to secure our object in this matter, we must direct their attention as much as possible to the objects themselves. Thus, while we are teaching or talking, reading or walking, we shall find many things which will excite their curiosity, and by which, at the same time, the names of objects around them may be strikingly fixed in their minds. We might with the same propriety believe, that all the purposes of reasoning might be answered by the mere inspection of geometrical diagrams, as that the *pictures* of things will conduct the mind to an accurate knowledge of the *things* themselves.

It has been observed by those who *think* they see utility in sprinkling the pages of school-books with pictures, that none condemn them, but those who are unacquainted with teaching, and that *pictures* are to children what *diagrams* are in Geometry to students. We see no resemblance in the parallel. We have no doubt, however, that some *really* believe this to be the case, and, it most certainly is not the first or only instance in which an absurdity has been taken for a truth. Every person must know, that it is a common thing for one to be sincere in the belief of that which is radically erroneous. Can it be doubted, that the ignorant Moslem or Turk is not honest in his faith, when he speaks from the heart? And in a thousand instances, we may see, and do see, the fact verified, that the mind may labor under gross delusion, while the intention is wholly upright. When persons, therefore, on a matter of this kind, make so broad a declaration as that alluded to, we must attribute it either to an error of the head, or to an ignorance of the nature of Geometrical science. But such a declaration argues something more than these: it argues more dogmatism than wisdom; less skill in the profession of teaching and less practical knowledge of the operations of the human understanding, than those individuals are aware of. Any one conversant with Geometry and Algebra, knows that mathematical diagrams and symbolical characters are dead letters to those who are wanting in the power of mind, necessary to trace the relations evolved by the contemplation of these sensible representations, and to see correct conclusions from given data or certain principles. These sciences address the mental; pictures the external vision. The science of pure Geometry is as abstract as that of Metaphysics, and of far more use in improving the faculty of attention than it, inasmuch as the former requires much longer processes of reasoning in following out all the various steps of an investigation, till we arrive at the conclusion, while the latter induces a capacity of fixing attention on the subjects of our own

consciousness, without being distracted by any thing external. It is well known, that geometricians often carry on in their minds, independently of any visible outward figures, long and connected chains of the most abstruse reasoning, and that the very nature of the science tends to create such intellectual efforts. But can this, in any shape or form, be predicated of, or expected from, scholars, who substitute for geometrical diagrams and reasoning, books containing the picture of a fish, or a battle-ship, or any thing else? Where, in contemplating these cuts, will they find any cause for exercising those great powers of mind, abstraction and generalization, in the slightest degree? What in these pictures is there to excite the mind to action, either in the way of invention or of reasoning? It is true, indeed, that the eye sees a delineation before it; and so little does it avail, that the young know not whether, for example, the cut of a fish, is the representative of a particular fish—or all kinds of fish; or whether a battle-ship is like a flat or a steamboat. But it seems like wasting time to treat any further upon this point; and it would probably prove of little use to those, who are so clouded in intellectual vision, as to compare the results upon the mind arising from looking at a picture-book, with those springing from the study of Geometry.

It has been said by those who are interested in books of the character we have been considering, and in the publication of which they have invested a considerable sum of money, that they would be great losers, if the public mind should suffer a change in regard to their value, and teachers should exclude them from their schools. We remark, that the love of money should never sanction, nor be made to shield error, and that, perhaps, it was the love of this worldly good which first gave rise to such works. Shall it be allowed, that a few dollars are of more value than the means by which the mind and the moral affections are to be set right? Is it the love of money,—self-interest—that makes war upon truth, and endeavors to fortify itself in the strong-hold of the selfish feeling? It is not the stock invested, that we contemplate; it is the principle to which we direct public attention, and which, when attention is fairly turned to it, will most unquestionably be put down, no matter if a few individuals suffer the loss of a few bank bills. Let us put a plain case. Suppose, for example, that certain persons should invest in the publication of the Bible, a large amount of money, and should make such alterations and innovations in it, as were calculated to destroy the sacred character of that work, and thus unhinge the best interests of society, by rooting up vital religion, we ask whether the people, as a body, and especially, the clergy of all denominations, would wait to enquire how many dollars had been expended by those who had issued the work for the mere purpose of speculation and profit? We presume not. If selfishness or the love of gain led

men to propagate any thing, subservient to their interest only, but detrimental to that of society at large, they might naturally suppose a powerful reaction would ensue, and that every thinking and moral man would feel himself called upon to defend that most invaluable of all books. Now, we conceive the same holds correct in regard to improper works which find their way into education, and that every man who sees their injurious tendency, should exert himself to maintain its sound interests; for, say what you will, education, in its proper sense, makes man what he is, whether he be virtuous or vicious; happy or miserable. We view, then, the outcry which may be raised by those who have money in their mind and heart, as a baseless reason, that such books should not be condemned; but, on the contrary, a very strong argument, that rigid attention should be directed to them, whether they are histories, or arithmetics, natural philosophies or chemistries, reading books or grammars.

We believe it will not be denied by those who are capable of examining elementary books, that most of them are mere gull-traps in which the fickle, the unthinking and the ignorant are caught. But if the dull and plodding are deceived by promises of great excellence, what are we to think of those, who set themselves up to enlighten others, and ought therefore to have discrimination in literary and scientific matters, who introduce to their scholars, the works of those who are unfit to classify or arrange the material of any one science? Do they think youth are to receive any solid information from them, or, that by transferring into their minds, the scum of science, without order or method, it will be emitted in a "rectified state," and that it will receive strength, regularity, and beauty of form from the intellect's own intrinsic force? One would suppose that such is the case. But it requires something more than pictures and patch-work, barren details and disconnected description, to advance children in substantial knowledge. They must be taught the *use* of their intellectual faculties, and this can neither be done by mere *yes* and *no*, or by pigmy pictures, in which the frog is the size of the whale, and the rabbit, the size of the deer or buffaloe.

Instead, then, of these question and picture books, we would rejoice to see introduced in their place, well written elementary works. Let them be pure text books. As for those who use them, they should impart their remarks to their scholars *orally*, *perspicuously* and *briefly*. If instructers are not equal to this, let them prepare themselves. Those who teach successfully, are, at all times, ready in their resources, which they have derived by previous labor, and, such men do not require to be informed what course they should pursue, or what books are worthy of attention. Men who cannot make questions from the text of a book, are not fit to teach. The incapable and frivolous in mind require set

questions. They may be called hints to jog the memory—but, they are hints to cover incapability.

We observed at the beginning of this article, that education is the order of the day. "But it will be a curse, instead of a blessing, unless it create good habits of mind, since the form without the substance and effects, leads to the conceit and blind presumption which gave rise to the proverb, that a little knowledge is a dangerous thing. No true knowledge is dangerous in any quantity; it is the affectation which, in this case as in many others, brings shame upon the reality."

ACADEMIES AND COLLEGES.

BY THE REV. BAYNARD R. HALL.

Pennsylvania, Ohio, and some other States, are proudly eminent for magnificence in enterprise and liberality of spirit. With an unsparing hand they lavish money upon internal improvement: and if disappointed in expectation, are, like a disinterested parent, only excited to fresh and more generous exertions.

This spirit is specially conspicuous in the large, if not ample provision, made for common schools, and in the rich endowment of their numerous academies and colleges. The grants to these last named institutions amount to a vast sum of money. Very naturally and reasonably, therefore, might the States expect their literary fountains to flow with large and perennial waters, and to diminish neither in number or force. Of these fountains, however, some run in meagre and dribbling streams, and others have ceased to flow: whilst, in speedy succession, schools independent of legislative patronage and grants are becoming one after another extinct or insignificant.

Towns and neighborhoods, able, apparently, to sustain independent schools, are without such: and young men qualified as professional teachers, the alumni of our colleges, seek employment in the far west or the far south.

An adequate cause of these evils may be found in the departure of colleges from the sole and legitimate end of their corporations, that of completing an education begun in academies and primary schools. It seems to be forgotten that the primary school, the

academy and the college, are each intended to occupy an appropriate and separate part in juvenile education; and that any encroachment of one upon the province of the other, must sooner or later be mischievous to both. Academies do occasionally aim at too extended a course of studies: but not until the colleges, stooping from their loftiness, have by their preparatory schools, enticed *children* and *boys* prematurely from the domestic schools, and with all their endowments and apparatus and libraries and corporations and facilities, *descended* to fit for their four regular classes, pupils that ought to have been fitted at home. Robbed, therefore, of pupils naturally belonging to their province, and threatened thus with destruction from the very quarter for which they were preparing scholars, the academies are forced in self-defence to prolong their existence, by trenching upon the limits of the colleges.

The only plausible defence of this monopolizing spirit on the part of the colleges is, the pretext, that children and boys are better fitted for colleges in their preparatory department than elsewhere.

This is, however, not so: and any person may be convinced that every advantage is on the side of the academies, who knows that in such the instructers are better, the pupils fewer, the expenses smaller and the guardianship both parental and preceptorial.

That the tendency of the college preparatory school towards the academy is disastrous may be known, when we consider how prone men are to be captivated by names: and especially when the advertisements of bodies corporate, rich in means and appliances of education, do expressly set forth, in strong language and fair coloring, even to the cupidity and ambition of the parent, the abundant and decided advantages of their grammar schools.

The way in which an academy, especially an independent one, is injured and finally destroyed by the premature loss of its legitimate scholars, is manifest to all who have been instructers in such, and who have noticed the three degrees of education usually desired in any given district or neighborhood. The vast majority of parents wish for their children nothing beyond the four or five branches of the primary school; many are satisfied with the approximation made in the academy to the finish of the collegial system; whilst a very small minority are both for themselves and their country, happily, content with nothing less than the complete course of instruction which the wisdom of ages has shown cannot ordinarily be accomplished without the instrumentality of the college. Now the domestic academy, unless largely endowed by the state, needs for its continuance the pecuniary support derived both from those in its vicinity, who are designed for the intermediate grade of learning, and from those designed for the highest: the premature withdrawal of this latter portion, therefore,

is in the first place a premature withdrawal of its necessary funds, and secondly, a deep injury to the literary character of the school. It is, then, not very surprising that academical instructers unaided by the state or patriotic individuals, and unable to cope with the colleges, or as they have too generally become, mere mammoth academies, should in despair abandon their schools, and betake themselves to other employments, or depart, to exercise their vocation in other states of the Union.

If the preceding be a correct representation, it must be obvious, that at the abandonment of a domestic academy, of those in the neighborhood designed for the medium course of education, most will, without any effort, sink irrevocably from even their moderate ambition, and then others for want of means will be compelled to stop short: and hence none will there ever be well educated except the very small part supposed to be prematurely sent to college. This evil is then of itself a reason sufficient to incline the guardians of *universal* improvement to remove the radical cause. But the colleges themselves must in the end suffer from this ruin of the academies: for although through the force of their advertisements and agents they may prematurely gather up many of the wealthier lads for the preparatory class, they do not gather all whose parents design them for a collegial education; since many parents able and willing to sustain their sons from three to four years at college, are neither able nor willing to do it for five or six. And, moreover, many are lost to the colleges, who by the advice and influence of the academical instructers, are very often induced, contrary to their first intentions, to become graduates. Notwithstanding the catalogues of collegial students so imposingly prolonged by the appendance of names in the preparatory department, there is room to suspect that the number of graduates is annually diminishing, or at least, that it is not increasing:—whilst the aggregate of boys in those departments large apparently in the abstract, is quite small compared with the aggregate of those once receiving the intermediate degree of education in academies now extinct or expiring.

All the directors of the school districts allege that they cannot obtain instructers suitably qualified to conduct, at a moderate price, the free schools; and the colleges themselves confess that but few graduates will engage in the employment at any price: if suitable preceptors are, then, ever to be supplied by domestic education, we are to look to young men who never design to graduate, but to obtain the intermedial education appropriate to the academy. And such we know, speaking from actual experience, are as well qualified for the task in question as graduates: and also, that they do not deem the employment a degradation, or spurn the compensation.

From these and similar reasons, it would be not only just and patriotic in our colleges, but also wise and profitable, to lop away as soon as possible their preparatory departments; and for the Legislature in every way right, to grant no charters or appropriations of money to colleges that, transcending the original and legitimate limits, engross the functions both of an academy and of a primary school.

Bedford, Pennsylvania, June 3d.

GALVANISM.*

Galvanism is a peculiar kind of electricity, elicited by the force of chemical action, instead of friction. It is connected with one of the most brilliant periods of British Science, from the splendid discoveries to which it led Sir Humphrey Davy; but it has acquired additional interest since it has proved, by the reciprocal action of galvanic and magnetic currents, that magnetism has no existence as a distinct or separate principle, but is only an effect of electricity: therefore galvanism, as immediately connected with the theory of the earth and planets, forms a part of the physical account of their nature.

The disturbance of electric equilibrium, and a development of electricity, invariably accompanies the chemical action of a fluid on metallic substances, and is most plentiful when that action occasions oxydation. Metals vary in the quantity of electricity afforded by their combination with oxygen; but the greatest abundance is developed by the oxydation of zinc by weak sulphuric acid; and in conformity with the law that one kind of electricity cannot be evolved without an equal quantity of the other being brought into activity, it is found that the acid is positively, and the zinc negatively electric. It has not yet been ascertained why equilibrium is not restored by the contact of these two substances, which are both conductors, and in opposite electrical states: however, the electrical and chemical changes are so connected, that unless the equilibrium be restored the action of the acid will go on languidly, or stop as soon as a certain quantity of electricity is accumulated in the acid. The equilibrium however will be restored and the

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* Condensed from Mrs. Somerville on the Connection of the Physical Sciences.

action of the acid will be continuous, if a plate of copper be placed in contact with the zinc, both being partly immersed in the fluid; for the copper, not being acted upon by the acid, will serve as a conductor to convey the positive electricity from the acid to the zinc, and will at every instant restore the equilibrium, and then the oxydation of the zinc will go on rapidly. Thus three substances are concerned in forming a galvanic circuit, but it is indispensable that one of them be a fluid. In the common galvanic battery, the electricity which the fluid has acquired from the first plate of zinc exposed to its action is taken up by the copper plate belonging to the second pair, and transferred to the second zinc plate with which it is connected. This second plate of zinc having thus acquired a larger quantity of electricity than its natural share, communicates a larger quantity of electricity to the fluid in the second cell. This increased quantity is again transferred to the next pair of plates; and thus every succeeding alternation is productive of a further increase in the quantity of the electricity developed. This action, however, would stop, unless a vent were given to the accumulated electricity, by establishing a communication between the positive and negative poles of the battery, by means of wires attached to the extreme plate at each end. When the wires are brought into contact, the galvanic circuit is completed, the electricities meet and neutralize each other, producing the shock and other electrical phenomena—and then the electric current continues to flow uninterruptedly in the circuit, as long as the chemical action lasts. The stream of positive electricity flows from the zinc to the copper, but as the battery ends in a zinc plate, which communicates with the wire, the zinc end becomes the positive, and the copper the negative poles of a compound battery, which is exactly the reverse of what obtains in a single circuit.

Several fish possess the faculty of producing electrical effects. The most remarkable are the *gymnotus electricus*, found in South America, and the *torpedo*, a species of *ray*, frequent in the Mediterranean. The absolute quantity of electricity brought into circulation by the torpedo is so great that it effects the decomposition of water, has power sufficient *to make magnets*, and gives very severe shocks; it is identical in kind with that of the galvanic battery—the electricity of the under surface of the fish being the same with the positive pole: its manner of action is, however, somewhat different; for, although the evolution of the electricity is continued for a sensible time, it is interrupted, being communicated by a succession of discharges.

MAGNETISM.

In order to explain the other methods of exciting electricity, and the recent discoveries which have been made in that science, it is necessary to be acquainted with the general theory of magnet-

ism, and also with the magnetism of the earth, the director of the mariner's compass, and his guide through the ocean. Its influence extends over every part of the earth's surface, but its action on the magnetic needle determines the poles of this great magnet, which by no means coincide with the poles of the earth's rotation. In consequence of their attraction and repulsion, a needle freely suspended, whether it be magnetic or not, only remains in equilibrium when in the magnetic meridian; that is, in the plane which passes through the north and south magnetic poles. There are places where the magnetic meridian coincides with the terrestrial meridian. In these, a magnetic needle freely suspended points to the true north; but if it be carried successively to different places on the earth's surface, its direction will deviate sometimes to the east and sometimes to the west of north. The needle is also subject to diurnal variation. In our latitudes, (England, etc.) it moves slowly eastward during the forenoon, and returns to its mean position about ten in the evening; it then deviates to the westward, and again returns to its mean position about ten in the morning. M. Kupffer, of Casan, ascertained in the year 1831, that there is a nightly as well as diurnal variation, depending, in his opinion, upon a variation in the magnetic equator.

Very delicate experiments have shown that all bodies are more or less susceptible of magnetism. Many of the *gems* give signs of it; *cobalt*, *titanium* and *nickel* sometimes even possess the properties of attraction and repulsion: but the magnetic agency is most powerfully developed in *iron*, and in that particular ore of iron called the *loadstone*, which consists of the protoxyd and peroxyd of iron, together with small portions of silica and alumina. A metal is often susceptible of magnetism if it only contain the 130,000th part of its weight of iron, a quantity too small to be detected by any mechanical test.

The bodies in question are naturally magnetic, but that property may be imparted by a variety of methods, as by friction with magnetic bodies, or juxta-position to them; but none is more simple than percussion.

One of the most distinguishing marks of magnetism is polarity, or the property a magnet possesses when freely suspended, of spontaneously pointing nearly north and south, and always returning to that position when disturbed. Another property of a magnet is the attraction of unmagnetized iron. Both poles of a magnet attract iron, which in return attracts either pole of a magnet with an equal and contrary force. The action of the magnet on unmagnetized iron is confined to attraction, whereas the reciprocal agency of magnets is characterized by a repulsive as well as attractive force: for a north pole repels a north pole, and a south pole repels a south pole; but a north and a south pole mutually attract one another, which proves that there are two distinct kinds of magnetic

forces directly opposite in their effects, though similar in their mode of action.

Iron acquires magnetism more rapidly than steel, yet it loses it as quickly on the removal of the magnet; whereas steel is impressed with a lasting polarity.

The feebleness of the coercive force in iron and its energy in steel, with regard to magnetic fluids, is perfectly analagous to the facility of transmission afforded to the electric fluids by non-electrics, and the resistance they experience in electrics. At every step the analogy between magnetism and electricity becomes more striking. The agency of attraction and repulsion is common to both: the positive and negative electricities are similar to the northern and southern polarities, and are governed by the same laws—namely, that between like powers there is repulsion, and between unlike powers there is attraction. A like analogy extends to magnetic and electrical induction. The analogy, however, does not extend to transference. A body may transfer a redundant quantity of positive or negative electricity to another, the one gaining at the expense of the other; but there is no instance of a body possessing only one kind of polarity. With this exception, there is such a perfect correspondence between the theories of magnetic attractions and repulsions, and electric forces in conducting bodies, that they are not only the same in principle, but are determined by the same formula. Experience concurs with theory in proving the identity of these two unseen influences.*

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* The disturbing effects of *aurora borealis* and of *lightning* on the mariner's compass had long been known, but in the year 1819, M. Oersted, Professor of Philosophy at Copenhagen, discovered that a current of voltaic (or galvanic) electricity exerts a powerful influence on a magnetized needle, an observation which has given rise to the theory of Electro-Magnetism, the most interesting science of modern times, whether it be considered as leading us a step further in generalization by identifying two agencies hitherto referred to different causes, or developing a new force unparalleled in the system of the world.

FACTS IN RELATION TO ELECTRO-MAGNETISM.

BY DAVID ALTER.

1. A plate of copper and a plate of zinc, placed in dilute acid, without touching each other, will cause a current of electricity to

pass through a wire, from the copper to the zinc, when one end of the wire is in contact with the copper, and the other end touches the zinc.

2. The quantity that passes along the wire depends on the extent of the surfaces acted on by the dilute acid, their proximity to each other, and the length of the wire.

3. Experiment proves that a magnet is equally affected by every point of a conductor along which an electric current is passing; so that a wire transmitting the same current will act with more or less energy, according as the number of its parts contiguous to the needle is made to vary.

4. The magnetic power of an electric current decreases in proportion as the squares of the distance from the conductor increase.

5. The tendency of a magnetic pole is to revolve round a conductor, transmitting a current of electricity at right angles to the direction of the current. Thus a current passing along a wire from south to north, will cause a needle placed under it to have its north pole deflected towards the west side of the conductor; if level with it, the north pole will rise; if placed above the wire, the north pole will be deflected eastward; and on the east it will sink downward. The south pole of the needle will in all these situations have a tendency to move in an opposite direction.

6. A conductor, coiled into a helix, concentrates the power of the several parts of the wire, so as to act with greater energy on the poles of a magnet.

7. The magnetism of iron and steel is decomposed by an electric current; the poles receding from each other in the same direction with respect to the conductor that the poles of a magnetic needle would move when in the same situation as the iron or steel; thus giving polarity to iron or steel that did not before possess it.

8. The power of a single pair of plates, in deflecting the magnetic needle, is directly proportional to the surface of the plates which are covered with dilute acid: that is, a given deflection, produced by covering one square inch of each plate with liquid, will be doubled when two square inches are immersed.

9. A plate of zinc introduced into a rectangular cup of copper, deflects the needle twice as much as when one side of the zinc and the adjacent surface of copper are protected by a coating of cement from the action of the acid solution. The varying condition of the experiments was calculated to affect the quantity of electricity set in motion, without changing the intensity; and, therefore, the results proving the deflection to depend on quantity and not on tension, entirely conform to general experience.

10. The deflection produced by a pair of plates, in an acid solution of uniform strength, varies inversely as the square root of the distance between them. Thus, if a plate of zinc be placed succes-

sively at one, four, and nine inches from a plate of copper, the deflecting power will be in the ratio of three, two and one; that is, only twice as great at one inch as at four, and only three times as great at one inch as at nine inches.

11. The same law applies to variations in the length of the wire by which the zinc and copper plates are connected. If, all other circumstances being uniform, the conducting wire varies from four feet to one foot in length, the deflecting power will vary in the ratio of one to two. Short metallic wires vary the deflection inversely as the square root of the length of the whole circuit, that is, of the solid and liquid conductors taken together. The wire in these experiments must be single, and large enough to convey freely all the electricity developed. Ritchie has shown, agreeably to general observation, that the deflecting power of a compound circle is not increased by increasing the number of its plates. A single pair of plates, with a good conducting liquid within the cell, and supplied with large conducting wires, capable of carrying off the whole quantity of electricity set in motion, deflects the needle nearly or quite as much as a battery composed of several pairs of plates of the same size. This is another proof that the main influence of a number of plates is to influence the intensity and not the quantity of electricity; for the prevailing opinion that the magnetic needle takes no cognizance of its intensity is fully borne out by the experiments of Faraday. The magnetic needle may be viewed as an exact measure of the quantity of electricity in motion, without any reference to its tension.

12. Though soft iron does not retain magnetism, its magnetic properties, while under the influence of an electric current are very surprising. A piece of soft iron about a foot long and an inch in diameter, is bent into the form of a horse-shoe, a copper wire is twisted round the bar at right angles to its axis, and an armature of soft iron, to which a weight may be attached, is fitted to its extremities. On connecting the ends of the wire with a simple voltaic circle, even of small size, the soft iron instantly becomes a powerful magnet, and will support a weight of fifty, sixty, or even seventy pounds. Increasing the number of coils gives a great increase of power; but as the length of wire required for that purpose diminishes the influence of the current, the following arrangement has been successfully adopted: The total length of copper wire intended to be used is cut into several pieces, each of which, covered with silk or cotton thread to prevent lateral communication, is coiled separately on the iron. The ends of all the wires are then collected into two separate parcels, and are made to communicate with the same voltaic battery, taking care that the positive current shall pass along each wire in the same direction. The current is thus divided into a number of branches, and has only a short passage from one end of the battery to the

other, though it gives energy to a multitude of coils. A combination of this kind, connected with a battery of five feet square, supported 2063 pounds, or nearly a ton weight.

13. The power of attraction of an electric magnet appears to diminish more rapidly, by distance, than the attractive force of a steel magnet. This is probably caused by the electric current inducing an additional magnetic power the instant that a portion of the free magnetism of the poles is saturated by the armature, thus increasing the attraction till the armature comes in contact with the magnet, when it arrives at a maximum.

14. A steel magnet that will support one ounce of iron at a certain distance, will support two ounces if another steel magnet of equal size and power is placed against it, so that their poles of the same kind are in contact with each other. Thus, if Mr. Davenport had placed another set of semi-circles of equal size and power upon those that surrounded the revolving wheel, the stationary part of his model would have had twice the power; but in order to obtain greater power by placing a number of steel magnets on each other, the poles of the moving electro-magnet should be extended, so as to revolve close to all the poles of the permanent magnets, and this could be done to some extent without diminishing their power as exerted on any individual pole of the stationary magnets.

15. The power with which an electro-magnetic wheel will revolve, is the mean of power exerted on its poles from the time the revolving poles leave one stationary pole till they reach another.

16. By increasing the revolving wheel to twice its original diameter, the power of the machine will be only half of what it was when the same number of poles are used in both cases; as the power of attraction and repulsion decreases in a four-fold proportion, and the power, by an extension of the diameter, increases in a twofold proportion.

17. If six stationary poles were arranged at equal distances from each other round the revolving wheel, the power would be three times as great as when two poles only are used. In Mr. Davenport's machine, two stationary poles are employed.

18. Mr. Davenport's machine distributes the power of the poles round the circumference of the revolving wheel, which is a great addition to the uniformity of its motion; but this could also be done when more than two poles are used, and with less detriment to its power when the diameter of the wheel is increased.

Summary of Power, without increase of Diameter.

I. By increase of poles in the stationary parts from two to six in number, the increase of power is from one to three.

II. By two poles of a steel magnet at each stationary pole, from one to two.

III. By increase of the surface of the plates from one to two, from one to two.

The whole making the same machine act with ten times the energy.

The above summary applies to permanent steel magnets, and of course is not applicable where stationary electro-magnets are used. It will be readily seen, that this power will be much more applicable to locomotion than steam, as it requires the increase of only one of its parts, (viz. the size of its plates) to give the necessary increase of power; whereas a steam engine requires all its parts to be enlarged and increased in strength, in order to produce an increase of power; and consequently the steam engine does not act so well as its model, from the great increase of weight and friction. An increase of the plates of an electric engine requires the capacity of the box containing the plates to be enlarged, and the additional weight of the plates and the acid; but a steam boiler requires to be stronger in its parietes, and the piston suffers an increase of friction in proportion to its enlargement.

Answers to the following queries on electro-magnetism would be important:

1. In what ratio does the attraction of electro-magnets diminish by distance?

2. What is the diameter of a wire that will freely conduct all the fluid excited by a given surface of plates?

3. What would be the proportionate power of attraction of an electro-magnet of a given diameter composed with one greater or smaller in diameter, when each has the same number of coils and the same surface of plates?

4. Would not the power be increased if the iron of an electro-magnet was cut like a screw, so as to let the wire in between its threads to half its diameter?

5. What would be the most efficient diameter of a revolving wheel?

Elderton, Armstrong Co. Pa., June, 1837.

COMMON SCHOOLS.

The office of Superintendent of Common Schools is one of the results of the exertions of the College of Professional Teachers

and Western Literary Institute, established in Cincinnati, seven years ago. It has continued to grow in talent and numbers, and is now extending its vast and benign influence in the cause of education throughout the West and South.

At the instance of Albert Picket, Sen'r., President of the Institution, the Ohio Directory, consisting of Elijah Slack, William H. McGuffey, M. G. Williams, A. Kinmont, B. P. Aydelott, and C. E. Stowe, nominated adequate persons to represent the objects of the College of Teachers before the Legislature of the State. The persons named for that purpose, were, Samuel Lewis, Calvin E. Stowe, William H. McGuffey, Edward D. Mansfield; men of acknowledged talents, and who performed their duties with great zeal and ability. Their powerful appeals to the Legislature in behalf of education, induced legislative action, and led to the establishment of a superintending officer. Samuel Lewis, Esq. was selected, and we know of no one from whom the State may expect more untiring zeal in the faithful discharge of his official duties, than from the object of their choice.

A similar effort was made, and was successful, in several of the other States at the last sitting of their respective Legislatures, through the instrumentality of directories appointed by the College of Professional Teachers. The effect of these proceedings is beginning to be felt in every direction, and it is to be hoped, that the people, now awaking to their true interest, will continue to move onward, till a correct system of instruction be found in every section of our country. EDITOR.

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ADDRESS OF THE SUPERINTENDENT OF OHIO.

The subject of common school education has become one of the most popular themes upon which a citizen of Ohio can address his fellow citizens. Numerous petitions have been annually laid before the legislature, calling for improvements and extensions of the system. The want of full statistical information has been felt, and in part, to remedy that defect a Superintendent of common schools has been appointed, whose duty it is, among other things, to collect through the county auditors and school officers an accurate and complete report in every school district in the State. As this report may form the basis of future legislation, its fullness and correctness are therefore of the utmost importance.

This measure of the legislature has been generally received with favor, and though parties divide the people on almost all other subjects, this, for the improvement of common schools, is adopted and approved by men of all sides; and already the friends

of the schools, and of education generally, have predicted the most favorable results.

It should be distinctly understood, that but little can be done without the co-operation of the county auditors and school directors throughout the State, however zealous and industrious your superintendent may be.

Look for a moment at the work to be done.

There are in the State 72 counties, containing 1060 townships, divided into more than 8000 school districts, from each of which a report is required. The superintendent could not visit in person more than two districts a day, and make the proper examinations. If he could devote all his time to this part of his duty, he would only visit about 600 districts a year, but he has other duties of his office that will occupy at least one-third, or perhaps one-half of the time. This review shows that the personal labor of the superintendent will be inadequate to all the information required.

Who then are to aid in the work?

The legislature, by the same law referred to, requires the Superintendent to address circulars to the county auditors, with the proper directions, in the month of May. The county auditors are required to address circulars to the school directors of each district; and it is made the duty of the school directors to furnish the particular information in detail.

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TO THE COUNTY AUDITORS.

Gentlemen—I have prepared and sent to each of you my circular, containing a copy of the law and a statement of what is required; but for fear of accident, another copy will be forwarded to each of you, and also a copy of the circular of the county auditor to the school and township officers as prepared by the auditor of this county. You can adopt this or any other form you please, so as to effect the object. You have also received blank forms to facilitate your labors, and secure, as far as possible, uniformity in your returns.

Gentlemen—The extended action under this law must *begin* with *you*. Any delay on your part will delay the whole. The school officers must receive their instructions from you; the circular already in your possession will furnish all needful directions to you. Let me entreat you *to send out your circulars* at least one to every school district, and to every township clerk in your respective counties immediately, as the law directs. Read it for yourselves, and let us all be governed by the requisitions of the law under which we are now called to act.

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TO THE OFFICERS OF COMMON SCHOOLS IN THE STATE OF OHIO.

Gentlemen:—On you, after all, devolves the greater part of the work, and the legislature looks to you for an active and effectual

endeavor to furnish all the information required. Your returns are to be made to the county auditors, and by the county auditors forwarded to the superintendent, to be laid before the legislature.

The county auditors have copies of the law and directions, on all the points on which reports are required. You are, therefore, referred to these officers for information, should they in any case fail to comply with their duty in placing the proper documents in your hands at an early day.

You will be particularly careful that your annual report includes all the time from the third Friday in October, 1836, to the third Friday in October, 1837, being the period of the annual election of boards of school officers.

There are in the State, say seventy-two county auditors, and more than twenty thousand school officers including school directors, examiners, clerks, and treasurers, besides school teachers, any one of whom can, in one or two days, collect and furnish, with sufficient accuracy, all that is required for his particular district.

TO THE CITIZENS OF OHIO.

Fellow Citizens—An important trust has been committed to you, as citizens of a free country; but that trust, in regard to the interests of education, was never so important as now. Formerly but little was required of you, because the country was too new to admit of much action on the subject; but now much is required to be done, if you would preserve equal rights to all! The voices of all men of all parties unite, from east to west, from the lake to the Ohio river, in favor of general education! To avoid the evils of partial legislation, a superintendent has been appointed; but he cannot answer the expectation of the public unless the people respond to the call now made, and, through the proper officers, cause full reports to be made within the proper time.

Fellow citizens, much has already been done, but it is admitted, on all hands, that much yet remains to be done. The legislature, with an earnest disposition to go forward in the good work, stand and call upon you for information, as to what is now doing, what remains to be done, and how they may best accomplish the object so generally favored.

Large sums of money are derived from lands and taxes; and other large appropriations have recently been made for common schools, to an extent that must secure us, as a State, the admiration of the intelligent and the patriotic every where.

Your superintendent has entered upon the duties of his office with fear and hope. He can only be of service by collecting and laying before your legislature your several thousand voices; he claims only an earnest wish to promote the great cause of education, the common schools, "THE PEOPLE'S COLLEGES!" He is, to a great extent, powerless, except as your organ. Some action, deci-

sive action, will probably ensue from the legislature of next winter. It depends on the people what shall be the character of that action. Three or four active men in a county, with a little aid from the school officers and county auditor, may furnish the superintendent with such information as shall secure the interest and improvement of all the schools within their bounds. The superintendent will spare neither time nor labor, in order to accomplish his task, and he emphatically asks, once more, fellow citizens, will you aid and sustain him?

SAMUEL LEWIS,
Superintendent of Common Schools for Ohio.

CIRCULAR

OF THE EXECUTIVE COMMITTEE OF THE COLLEGE OF TEACHERS.

The Seventh Annual Convention of the College of Teachers will take place in Cincinnati on the first Monday in October next.

It is unnecessary for the Executive Committee to repeat what is now universally acknowledged, that the business of this College is of an essentially useful and patriotic character, and such as has drawn upon it, the warm and disinterested friendship of individuals, in other respects widely separated from each other, but who have found in advancing the common cause of Education, a wide field and room enough for all their efforts of benevolence, and the harmony of combined action. This is essentially the cause of our country and of all good men, whatever their names or bearing.

The Executive Committee have received many communications from abroad; and have the assurances of aid from several distinguished individuals, who, either in Lectures or written communications, will enliven the interest, and add to the usefulness of the meeting. It is hoped that our own citizens at home, will not be backward at least to *second* these movements felt at a distance; and to remember that it is one of the most effectual means to alleviate a *temporary depression*, to turn the thoughts away from it, and to direct them on the advancement of the Public Good, and the increase of Virtue and Intelligence among mankind.

Albert Picket, Sen.	A. Kinmont.
Elijah Slack.	S. H. Montgomery.
Thomas Maylin.	D. L. Talbott.
N. Holley.	Isaac Van Eaton.

The following will form a part of the Exercises of the next meeting. Several other distinguished individuals will contribute to the interest of the occasion. Their subjects of Lecture have not been received in time for this notice.

LECTURES.

1. Rev. S. W. Lynd—"Introductory."

2. Rev. Benjamin Huntoon—"The importance of moral Education keeping pace with the progress of the Mechanic Arts."

3. Dr. Wm. Wood—"The influence of Education on the Mind."

4. Samuel Lewis—"On the Expediency of adapting Common School instruction to the entire wants of the community."

5. Rev. James Fishback—"On the propriety and necessity of making the Bible a School Book in institutions of learning."

6. Rev. J. M. Peck—"On the importance of a more thorough and critical knowledge of the English Language in our Schools and Colleges."

7. S. Eels—"The dignity of the office of the Professional Teacher."

8. Rev. C. E. Stowe—"On the Prussian system of Education."

9. Rev. J. Adams—"On the nature of the relation subsisting between the Trustees and Faculty of a University, College, or Academy—as such institutions are constituted in the U. States."

10. Rev. L. L. Hamlin—

11. Rev. Lyman Beecher—

12. Rev. Charles Elliott—

13. Robert T. Lytle, esq.—

14. Bellamy Storer, esq.—

REPORTS.

15. What branches now taught in our Colleges (if any) should be abridged, to afford time for the study of Anatomy and Physiology.

Committee.

W. H. M'GUFFEY,—J. RAY,—A. KINMONT, Cincinnati.

16. Should the examinations of Schools and Colleges be public or private?

Committee.

G. WELLER, Nashville;—A. PICKET, Sen., Cincinnati.

17. On the advantages of having the vacations in Colleges so arranged as to afford time to the Students to employ at least three consecutive months in teaching.

Committee.

RUFUS NUTTING, Hudson,—J. KENDRICK, Gambier, O.

18. On Boarding Schools; their advantages and disadvantages.

Committee.

S. H. MONTGOMERY, Cin.;—G. A. ELDER, Bardstown, Ky.

19. On Domestic Education.

Committee.

B. P. AYDELOTT,—D. S. BURNET, Cincinnati.

20. What effect on Education has the present great number of Text and School Books in our country?

Committee.

M. G. WILLIAMS, Springfield,—E. E. BARNEY, Dayton, O.

21. On the best method of classifying Pupils, and arranging the Studies to be pursued in Common Schools.

Committee.

E. SLACK,—W. HOPWOOD, Cincinnati.

22. What branches of elementary Instruction are appropriate to each of the Sexes?

Committee.

ALBERT PICKET, Sen.,—N. HOLLEY, Cincinnati.

23. On Physical Education.

Committee.

DANIEL DRAKE,—J. P. HARRISON, Cincinnati.

24. On the introduction of the study of Criminal and Constitutional Law into our Literary Institutions.

Committee.

E. D. MANSFIELD, Cincinnati.

25. On the best method of diffusing Education in the south-western states and territories.

Committee.

N. CROSS,—G. WELLER. Nashville.

26. On the causes which conspired in the revival of Literature.

Committee.

A. CAMPBELL, Virginia,—R. RICHARDSON, Ohio.

27. On a philosophical classification of all Science.

Committee.

PHILIP LINDSLEY, Nashville,—P. S. FALL, Frankfort.

28. On the expediency of introducing selections from the Bible, instead of the Bible *itself*, into our Schools.

Committee.

JOHN B. PURCELL,—B. P. AYDELOTT, Cincinnati.

29. Whether Infant Schools ought to be constituted rather with a reference to Moral than Intellectual culture.

Committee.

A. CAMPBELL, Virginia,—J. L. WILSON, Cincinnati.

30. On the best means of early Mental Culture.

Committee.

O. L. LEONARD, Louisville,—S. P. HILDRETH, Marietta.

31. On the beneficial influence of Sunday School Instruction upon the Pupils in Common Schools.

Committee.

J. L. HOLMAN, Indiana,—B. J. HAIGHT, Cincinnati.

32. On the present state of the Science of Arithmetic as a branch of Education.

Committee.

JOHN D. CRAIG,—JOHN HILTON, Cincinnati.

33. On the present state of the Science of Modern Geography as a branch of Education.

Committee.

J. W. SCOTT, Oxford, O.,—J. L. TALBOTT, Cincinnati.

34. On the present state of the Science of English Grammar.

Committee.

W. H. McGUFFEY, Cincinnati.

35. On the present state of the History of the United States.

Committee.

E. D. MANSFIELD,—D. L. TALBOTT, Cincinnati.

36. On the present state of the Science of Geometry as a branch of Education.

Committee.

J. H. HARNEY, South Hanover, Indiana.

37. On the present state of the Practical Mathematics as a branch of Education.

Committee.

E. N. ELLIOTT, Indiana.

38. On the present state of the Science of Algebra.

Committee.

J. RAY, Cincinnati.

39. To enquire into the extent to which Linear Drawing may be taught in Common Schools.

Committee.

O. M. MITCHELL,—F. ECKSTEIN, Cincinnati.

40. On the practicability and importance of creating departments in our State Governments, having the subject of Public Instruction under their immediate supervision.

Committee.

A. CAMPBELL, Virginia.
SAMUEL LEWIS, Cincinnati.
E. N. ELLIOTT, Bloomington, Indiana.
J. H. HARNEY, South Hanover, Indiana.
C. E. STOWE, Lane Seminary.
E. D. MANSFIELD, Cincinnati.
G. WELLER, Nashville.

41. On the mutual relation of Trustees and Faculties in Literary Institutions, and the peculiar province, right, and duties of each.

Committee.

B. P. AYDELOTT,—W. H. McGUFFEY, Cincinnati;—
M. G. WILLIAMS, Springfield.

42. On the importance of Civil Engineering as a branch of Collegiate Education.

Committee.

O. M. MITCHELL, Cincinnati;—B. O. PEERS, Louisville;—
E. N. ELLIOTT, Indiana.

43. On Vocal Music as a branch of Common School Education.

Committee.

T. B. MASON,—C. BEECHER, Cincinnati.

44. On the causes of the idle habits of Pupils in the Class-room, and a remedy for the same.

Committee.

N. HOLLEY,—A. PICKET. Sen.

LITERARY NOTICES.

The Political Grammar of the United States; or, a complete view of the Theory and Practice of the General and State Governments, with the relations between them: By *Edward D. Mansfield,* Counsellor at Law.

It may be remembered by our readers, that, some three or four months ago, we refused to publish a review of Mansfield's Political Grammar, on account of its intemperate spirit. We allowed the ability with which the article was written; but, there was a very perceptible manifestation of ill feeling towards the man, rather

than the book. Since our examination of the Political Grammar, we are confirmed in our belief. We deprecate that spirit of criticism, which is rife in our country, and which finds a ready medium through the press, of assailing, out of sheer malignity of heart, personal envy, or selfishness, the abilities or reputation of men, under *pretext* of public good.

The effect of that Review upon our mind, was to direct our attention to the work; and so far as an attentive scrutiny will warrant us in expressing an opinion, we do not hesitate to place the Political Grammar among the most valuable of those works which ought to constitute the study of the students of schools and colleges. It is a work of solid matter and solid merit.—So much for the review with us.

It has been a thousand times remarked, that the stability of our republic depends upon popular opinion. It is evident, then, that opinion must be directed right. Our citizens have, besides literature and science, to acquire something more; they must acquire a knowledge of their political institutions,—institutions which they created, and which, if not guarded with the same vigilance and nurtured with the same care as gave them existence and reared them into manhood, must perish. It is not enough that they *say* or *think*, they have political liberty; they must *know what it is*, and *how* to preserve it. And that knowledge ought to be—at least its elements—furnished by our academic and collegiate establishments.

It cannot be denied, that the instruction derived from literary institutions, exerts a powerful and direct influence over the feelings and opinions of the people; for, whatever may be the character of these establishments, the greater part of the citizens, are, through necessity or habit, educated, and their minds formed under their discipline; and as for the comparatively small number who receive a private education, even they feel the effects of the spirit exercised by those places devoted to science and literature. Here then should find an abiding place, such works as conduce to the knowledge of political freedom and rational law.

Montesquieu in his fourth book of Spirit of Laws, lays it down, that education should be in accordance with the principles of the government, in order to secure its existence. Hence in our country, as the people are the source of power—nay the power itself—it follows, that education should be solid, profound and universal. Reason is the basis of all government founded on the rights of man; and it cannot be denied—nor can a doubt exist—that it must be constantly kept properly enlightened and purified, in order to exert its legitimate office. The more perfect its condition and the closer its connection with christian ethics, the more perfect will be government, and the less necessity for the enactment and execution of penal laws. And, we cannot but believe, that a people enriched with sound learning, and guarded by the truths of a

divine religion, will approximate more nearly to genuine happiness, both individual and national, than can be expected from them under any other condition, during their earthly pilgrimage.

But the human mind, like the human heart, requires to be set right in the outset of its career. It may be indoctrinated in the principles of any form of government or religion; it may be led to love virtue, or to indulge in things forbidden, without feeling any compunctions of the moral sense. If it may be led wrong, it may be led right; if it may be taught to love the trappings of royalty, it may be led to love the simplicity of republicanism. All who observe must see, that it requires the highest energy and proper culture to fortify the mind against falling a prey to its own weaknesses and propensities, or the intrigues of base and designing men. Education—intellectual, moral and political—is the most effectual,—nay the only instrument adequate to the objects in view. Hence two imperious requisitions;—able teachers and proper books;—not merely books that will give information in botany, or chemistry, or mathematics, but those from which may be derived, under suitable instructers, all the knowledge which republican citizens should essentially possess, of the nature of their political institutions. But is this part of knowledge, so necessary to every American, sufficiently kept in view in our academies and collegiate establishments? Do they not, in general, seem to view the information of students, relative to our political fabric, as a matter of little consequence, and leave them, to pick up by irregular means—loquacious and wrangling politicians, and party-newspaper paragraphs—the very knowledge they ought to have received in the halls of learning? We are fearful it is too widely the case; and it is to be hoped, and it ought to be urged as a requisition on all literary establishments, that the study of political philosophy should hold a prominent position in the education of youth, and that every educator should prepare himself for that part of his labors.

To those who see the importance of this kind of knowledge, whether parents or teachers, we strongly recommend Mansfield's Political Grammar, as the clearest, best arranged and most luminous text-book on this subject, that we have seen.

Political Text-Book, published by *Eli Taylor*, Cincinnati, 1837.

This is a beautiful little volume, miniature form, handsomely printed and bound, containing the Declaration of Independence, Articles of Confederation, Constitution of the United States, and Washington's Farewell Address. It needs hardly to be remarked, that the contents of these documents ought to be treasured in the memory of every citizen of our Republic. It will be found a very convenient work for reference, and in these times of political excitement will not be found out of place in our pocket.

ABSTRACT OF METEOROLOGICAL OBSERVATIONS

FOR THE MONTH OF JULY, 1837, TAKEN AT WOODWARD COLLEGE, CINCINNATI—BY JOSEPH RAY, M. D., PROF. MATH.

July, 1837.	Thermometer. min	max	m tp	Barom. mn ht inches	Course wind AM	PM.	charac'r wind	rain	charac'r weather.	Miscellany.
1	74.0	88.0	73.8	29.293	SW	SW	lt. wd	·17	cloudy	
2	67.0	85.0	73.8	29.300	SW	SW	lt. wd	·65	cloudy	
● 3	65.0	82.0	71.0	29.297	W	W	lt. wd		fair	
4	64.0	94.0	79.8	29.266	SW	SW	lt. wd		clear	
5	72.0	87.0	73.1	29.147	SW	SW	high wd	·65	variable	thun. storm
6	72.0	94.0	80.5	29.223	SW	SW	lt. wd	·10	cloudy	
7	69 0	82.0	73.7	29.231	SW	SW	str, wd	·75	cloudy	wet afternoon
8	62.0	84.0	70.2	29.335	N	N	lt. wd		fair	fine
9	62.0	86.0	73.3	29.361	E	E	lt. bre		clear	harvest
◐ 10	68.0	89.0	76.5	29.343	E	E	lt. bre		fair	weather.
11	65.0	90.0	73.8	29.351	NW	NW	lt. bre		fair	
12	62.0	90.0	74.0	29.393	W	W	lt. bre		clear	
13	64.0	92.0	75.8	29.381	W	W	lt. bre		fair	fine evening
14	65.0	95.0	78.3	29.263	W	W	lt. bre	·02	variable	rain, 5 p. m.
15	73.0	95.0	78.2	29.201	SW	W	str. wd	·05	variable	
16	58.0	85.0	72.3	29.303	W	W	str. bre		fair	
○ 17	60.0	88.0	74.2	29.413	W	W	lt. bre		fair	
18	67.0	94.0	81.7	29.417	SW	S	str. bre	·02	fair	
19	74.0	91.0	77.3	29.347	SW	W	str. bre	·01	fair	
20	59.0	89.0	73.0	29.361	W	W	str. bre		fair	
21	61.0	90.0	73.2	29.377	NE	NE	str. bre		fair	
22	60.0	86.0	71.8	29.303	NW	NW	str. bre		clear	
23	63.0	92.0	75.2	29.217	SW	SW	high wd	·37	variable	thund'r storm
◑ 24	66.0	82.0	70.8	29.217	W	NW	lt. wd		fair	
25	57.0	86.0	72.2	29.307	NW	W	str. bre		fair	
26	70.0	93.0	78.7	29.077	SW	W	str. wd	·42	variable	
27	72.0	87.0	76.0	29.177	W	NW	lt. wd		variable	
28	66.0	90.0	77.0	29.277	NE	NE	lt. bre		clear	sultry day
29	68.0	95.0	83.7	29.257	SW	SW	lt. bre		variable	very sultry nt
30	73.0	93.0	78.8	29.223	W	W	lt. wd	·61	variable	wet afternoon
31	65.0	82 0	73.3	29.313	W	NW	str. bre		clear	fine day

Mean temperature of the air (Fahrenheit's scale)	75°·32
Maximum height of thermometer	95°·
Minimum height of thermometer	57°·
Range of thermometer	38°·
Warmest day, July 29th.	
Coldest day, July 8th.	
Mean height of barometer, (English inches,)	29·2894
Maximum height of barometer,	29.44
Minimum height of barometer,	29·04
Range of barometer,	·40
Perpendicular depth of rain (inches)	3·83

Direction of Wind.—N. 1 day—N. E. 2 days—E. 2 days—S. ½ day—S. W. 10 days—W. 11½ days—N. W. 4 days.

Weather.—Clear and fair 19 days—variable 8 days—cloudy 4 days.

Until the 8th of this month, the weather was principally wet and cloudy, and very unfavorable for harvesting; since that period, the weather has been uncommonly fine. The mean temperature of this month is about half a degree less than that of the same month last year; while the amount of fair weather was much greater, and the quantity of rain only about one half.